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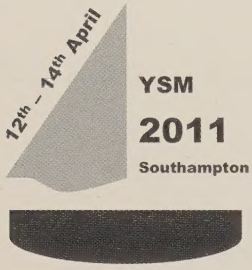
In brief

Young Statisticians' Meeting 2011



On 12–14 April 2011 the Young Statisticians' Meeting will be held at the University of Southampton. This is a two and a half day conference that brings together young statisticians – those in the first ten years of their statistical career – from across the civil service, industry and academia.

Registration for this event is now open and delegates are invited to submit abstracts for oral and poster presentations for a number of parallel sessions and a poster presentation session. The YSM 2011 also provides delegates with an excellent opportunity to experience a variety of statistical topics currently being researched and to explore the debates around wider issues in statistics.

This year, the conference will focus on the debate around the extent to which personal data should be held by the Government. There will be a special "Dinner and Debate" session on the first day of the conference where guest speakers - including Simon Briscoe, Statistics Editor of The Financial Times and David Bond, a freelance journalist known for his reporting on the use of personal data - will sit on a panel to discuss their opinions on this topic and answer delegates' questions. David recently made a Channel 4 film that was aired in cinemas nationwide and was broadcast on TV in late spring 2010. This documentary focused on the confidentiality issues around personal data and looked at how much of a 'surveillance society' the UK has become. The documentary will be screened prior to dinner on day one to give delegates some background information, and to spark debate. In this session, delegates will sit down to dinner and wine followed by the panellists putting forward their views on "Personal Data Held by Government". There will then be an opportunity for delegates to ask the panel questions and debate the issues raised. In addition, there will be workshops on the Census and Data Visualisation.

Full details of the conference are available at: YSM 2011

Consultation - Conception statistics

ONS is conducting a review of conception statistics to reduce the cost of producing conception outputs while ensuring that the published outputs continue to meet user requirements. Changes are proposed to both the timing and content of conception outputs.

Conception statistics and the consultation document are available on the ONS website at: Conception Statistics, England and Wales

Email: vsob@ons.gsi.gov.uk

Users' views received as a result of the consultation will be considered before implementing any changes to conception outputs. Further information will be published later in the year once responses from the consultation have been considered.

Consultation - Avoidable Mortality

On 16th February 2011 ONS launched an eight week consultation on avoidable mortality. The consultation outlines some key issues in the definition of avoidable mortality, explains new definitions proposed by ONS, and seeks the views of statistics users and experts.

Further information, including the consultation paper and how to respond can be found on the ONS website at: Open consultations: Office for National Statistics

Responses to the consultation are invited up to the 12th April 2011. A summary of the comments made will be published approximately 2 months after the consultation closes.

One release of birth and death summary tables for 2011

Provisional annual birth and death summary tables for 2009 were released on 25 May 2010 with final data published on 21 July 2010. To ensure the effective use of resources and avoid confusion among users, the requirement for provisional data in May was explored. No strong user requirement was identified so **provisional** annual data will no longer be published.

Final annual birth and death summary tables for 2010 will be published in July 2011 with more detailed data published over subsequent months. Any user comments are welcomed.

Email: vsob@ons.gov.uk

Injury and poisoning mortality, England and Wales

Statistics on the main causes of deaths from injury and poisoning mortality in England and Wales 2005–09 will be published on 1 March 2011. The tables present data using a matrix of mechanism by intent developed by the International Collaborative Effort (ICE) on injury statistics.

Mortality Statistics: Injury and Poisoning (Series DH4)

Adult Dental Health Survey preliminary findings

The 2009 Adult Dental Health Survey (ADHS) is the fifth in a series of national dental surveys that have been carried out every ten years since 1968. The main purpose of the survey is to establish the condition of the natural teeth and supporting tissues; to investigate dental experience, knowledge about and attitudes towards dental care and hygiene; to examine changes over time in dental health, attitudes and behaviour and to monitor the extent to which dental hygiene targets set by the government are being met. ONS have conducted the survey on behalf of the NHS Information Centre, working in consortium with the National Centre for Social Research and academics at the Universities of Birmingham, Cardiff, Dundee, Newcastle and University College London.

A total of 11,380 adults were interviewed for the survey, and 6,469 adults were examined. The survey covers England, Wales and Northern Ireland.

A First Release with preliminary findings was published in December 2010 by the NHS Information Centre. A series of more detailed reports are due to be published in March 2011 alongside a Foundation Report with technical details of the survey.

Key findings include:

- Overall, 94 per cent of adults in England, Wales and Northern Ireland were dentate[1], only 6 per cent had not maintained this basic threshold of oral health.
- The proportion of people who were edentate[2] varied by country. In England 6 per cent of adults were edentate compared with 10 per cent in Wales. Seven per cent of adults in Northern Ireland were edentate.
- Over the last 30 years the proportion of adults in England who were edentate has fallen by 22 percentage points from 28 per cent in 1978. In Wales, the proportion of adults who were edentate has fallen 27 percentage points from 37 per cent in 1978. In Northern Ireland, the proportion of adults who were edentate has fallen 26 percentage points from 33 per cent in 1979[3].
- 86 per cent of dentate adults had 21 or more natural teeth.
- The proportion of dentate adults with 21 or more natural teeth varied by country. In England 86 per cent of dentate adults had 21 or more natural teeth compared with 80 per cent of dentate adults in Wales. Eighty-four per cent of dentate adults in Northern Ireland had 21 or more natural teeth.

1 Dentate, that is having at least one natural tooth
2 Edentate, that is having no natural teeth
3 The Northern Ireland ADHS was conducted in 1979
4 This question was asked for the first time in Northern Ireland in 1988

- Over three-fifths of dentate adults said they attended the dentist for regular check-ups which had increased in all three countries between 1978 and 2009 (1988 to 2009 in Northern Ireland[4]). The greatest increase was observed in Wales, up 30 percentage points from 39 per cent in 1978 to 69 per cent in 2009.

- 12 per cent of all adults (who had ever been to the dentist) were classified as having extreme dental anxiety.

- Extreme dental anxiety was more prevalent among women than men, 17 per cent compared with 8 per cent respectively.

- There was a clear pattern of higher levels of dental anxiety among younger adults. Levels of extreme dental anxiety ranged from 15 per cent of adults aged 16 to 24 to 9 per cent of adults over 85.

Adult Dental Health Survey - 2009

Life Opportunities Survey Interim Report

The Life Opportunities Survey (LOS) is a new large-scale longitudinal survey of disability in Great Britain. LOS is the first major social survey in Great Britain to explore disability in terms of social barriers to participation, rather than only measuring disability in terms of impairments or health conditions. LOS compares the experiences of people with and without impairments across a range of areas, including education and training, employment, transport, leisure, social and cultural activities, and social contact. The interim findings were published in December 2010.

On LOS, an adult has a participation restriction if they experience at least one social barrier to taking part in at least one life area. The key findings of LOS between June 2009 and March 2010 are presented below.

- 17 per cent of adults with impairments experienced participation restrictions in their learning opportunities compared with 9 per cent of adults without impairments

- 56 per cent of adults with impairments experienced restrictions in the type or amount of paid work they did, compared with 26 per cent of adults without impairments

- 74 per cent of adults with impairments experienced restrictions in using transport compared with 58 per cent of adults without impairments

- 83 per cent of adults with impairments experienced a participation restriction in leisure, social and cultural activities compared with 78 per cent of adults without impairments

- 24 per cent of adults with impairments experienced a participation restriction to social contact (that is, being able to meet with close contacts as much as they would like) compared with 22 per cent of adults without impairments

- 12 per cent of adults with impairments experienced difficulty accessing rooms within their home or difficulty getting in or out of their home compared with 1 per cent of adults without impairments

- 29 per cent of adults with impairments experienced a participation restriction to accessing buildings outside their home compared with 7 per cent of adults without impairments

- 45 per cent of households where at least one person had an impairment were unable to afford expenses or make loan repayments. This compares with 29 per cent of households without any people with impairments

The LOS also reports on a variety of social barriers, such as lack of help or assistance, attitudes of other people and caring responsibility. Barriers to education and training are presented here as an example of the social barriers reported by respondents. Of those adults experiencing participation restrictions to learning opportunities:

- The main barrier to learning for adults with impairments was financial reasons (46 per cent). This was also the main barrier among adults without impairments (52 per cent)

- "Too busy/not enough time" was the second most common barrier to learning for adults with impairments (23 per cent). This was also the second most common barrier for adults without impairments (40 per cent)

Life Opportunities Survey

LOS User Guide (162Kb - Pdf)

Introduction of ICD–10 v2010

In January 2011 the Office for National Statistics (ONS) updated the software used to code cause of death from the International Classification of Diseases, Tenth Revision (ICD–10) v2001.2 to v2010.

The main changes in ICD–10 v2010 are amendments to the modification tables and selection rules. Modification tables and selection rules are used to ascertain a causal sequence and consistently assign underlying cause of death from the conditions recorded on the death certificate.

Mortality statistics for England and Wales for the 2011 data year will be coded to ICD–10 v2010. A bridge coding study has been carried out to help users understand the impact of the change. Overall, the impact is small although some cause groups are affected more than others.

Results from the ICD–10 v2010 bridge coding study

Results from the ICD–10 v2010 bridge coding study: stillbirths and neonatal deaths

ONS Longitudinal Study updated to 2009

The annual refresh of vital events linked to the ONS Longitudinal Study (ONS LS) will be complete in March 2011.

Researchers using the ONS LS will have access to an extra year of vital event information to use in their research. Information on births and deaths will be available for 2009, while cancer registrations will be available up to 2008.

The ONS LS contains linked census and vital event data for a 1 per cent sample of the population of England and Wales. Information about more than 500,000 study members has been captured at each of the censuses since 1971, and plans to incorporate data from the 2011 Census are well advanced. More than one million people have been recorded in the ONS LS sample at some point.

ONS LS data processing involves close collaboration between ONS staff based in Titchfield and their former colleagues in Southport, who are now part of the Medical Research Information Service within the NHS Information Centre for Health and Social Care. This has been the fourth full year of processing following ONS independence. Thanks to hard work and diligence of staff in both organisations, the transition has been seamless.

The ONS actively promotes wide use of the ONS LS while maintaining the confidentiality of the individuals in the sample. ONS LS records available for analysis are anonymised but the database contains individual-level data that have not been aggregated or disguised. To ensure confidentiality, these microdata can only be accessed at ONS sites through the Virtual Microdata Laboratory (VML). Support officers are available to help extract and use the data. ONS LS users can be sent aggregated data in the form of tabulations that have been checked to ensure there is no risk of identifying an individual.

For further information or for a discussion about using the LS please contact:

Academic users:
Centre for Longitudinal Study Information & User Support (CeLSIUS)
Tel: +44 (0) 20 7299 4634
Email: celsius@lshtm.ac.uk
CeLSIUS - Centre for Longitudinal Study Information and User Support

Other users:
Microdata Analysis and User Support Team
Tel: +44 (0) 1633 45 5844
Email: maus@ons.gsi.gov.uk
The ONS Longitudinal Study

New and improved ONS website to launch 30 April 2011

The Office for National Statistics (ONS) is developing a new website, with a focus on putting users' needs first. When it goes live on 30 April 2011 the new ONS website will deliver the following improvements:

- quicker and easier to find information, including better search and navigation
- easier to use the information, by downloading data, charts and graphs
- improved accessibility to ONS content for users with sight or other impairments
- prompt release of outputs at 9.30am sharp

Content will be transferred from the current website to the new one, but some existing bookmarks and links will no longer work.

After the initial launch, there will be further developments to the new website. These include:

- an online data explorer tool, allowing users to customise, interact with and download datasets
- an Application Programming Interface, enabling re-use of ONS data by others

Web Development

Deriving trends in life expectancy by the National Statistics Socio-economic Classification using the ONS Longitudinal Study

Brian Johnson *Office for National Statistics*

Abstract

Background

Health inequalities among socio-economic groups are well documented. One of the measures used to track inequalities over time is the series 'Trends in life expectancy by social class, 1972–2005', on the Office for National Statistics website. In 2001 the National Statistics Socio-economic Classification (NS-SEC), replaced Registrar General's social class (RGSC) for the purposes of official statistics. This paper describes the challenges involved in producing an analogous series of trends in life expectancy by NS-SEC to that by RGSC, the approach adopted, and publishes the first results of the new series.

Methods

NS-SEC was devised in the 1990s and introduced in 2001. Like RGSC, it is an occupation-based measure. In order to produce a series of trends over more than 20 years based on NS-SEC, it is necessary to classify people according to NS-SEC based on their occupation at the 1981 and 1991 Censuses and then to measure subsequent mortality rates for different classes. The 1981 Census preceded the construction of the NS-SEC classification system by nearly 20 years, and there was no recognised way of classifying 1981 Census respondents by NS-SEC. This paper describes how an approximation to allow such a classification was derived. The ONS Longitudinal Study was used to provide the data from which mortality and survival rates by NS-SEC class could then be estimated.

Results

The results are presented in terms of life expectancy at birth and at age 65 by five-year calendar periods, from 1982–86 to 2002–06. A social gradient was found using NS-SEC, similar to the one found using RGSC. For most classes for all periods studied, life expectancy improved for both males and females but inequalities persisted between classes. There was a difference of around six years for males between the most and least advantaged classes in expectation of life at birth and about four years for females in the

period 2002–06. The estimates suggested a widening of inequalities over the study period for men, which appeared to end after 2001. For women, no overall trend could be detected, but there were no signs of any narrowing of the gap in the most recent period.

Conclusions

NS-SEC can be used to provide medium-term trends in life expectancy by occupation based class, which will be capable of extension over time, although certain approximations are necessary. It is important that work should continue on investigating other means of classification, particularly for women, for example based on educational attainment and on household rather than individual-based measures.

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Introduction

Health inequalities among socio-economic groups are well documented. Since 1921 when the Registrar General's social class schema was introduced for adults, in the form that was to survive almost to the end of the century (Rose, 1995), differences in mortality rates among classes have been observed. These differences have persisted over time and have tended to prove resistant to the attempts of policymakers to reduce them. Influential reports on the subject have been produced by (among others), Black (1980), Acheson (1998) and most recently Marmot (2010) in '*Fair Society, Healthy Lives (The Marmot Review)*.' Together with policy recommendations, the latter provides a comprehensive overview of the situation in England and a wealth of references.

The conventional method for estimating mortality rates by class has been to use the decennial census of population to provide age and socio-economically stratified denominators, and death registrations coded by occupation for years close to the census to provide numerators. (Up to and including 1991 only a sample of census households had their occupants coded by occupation).

This method, while producing consistent findings over a long period, had a number of drawbacks:

Firstly, there are differences in the method of recording of occupation at death and at the census, and secondly, mortality rates can only be estimated at working ages, since occupation is not coded at the census for people over 74 years of age and sparsely coded between the ages of 65 and 74. (OPCS, 1978). Given that a decreasing minority of deaths occur below age 65, it became increasingly important to have available a means of classifying older people to NS-SEC using occupation recorded earlier in their lives. In this way, life expectancy can take account of life course exposures of those dying at older ages.

These shortcomings constituted a major part of the motivation for creating the ONS (formerly OPCS) Longitudinal Study (LS). This has eliminated numerator-denominator bias and allowed the classification of sample members according to their census characteristics often at working age, and the subsequent follow up to measure death and survival rates for each class over time. This allows the computation of age-specific mortality rates at older ages. This in turn has allowed the computation of life tables for different socio-economic classes to be produced.

'Expectation of life by social class' was first published by Hattersley (1997) and developed and updated by Donkin *et al.* (2002) and makes use of the LS, together with the continuity provided by the occupation-based RG social class classification. The series has been extended at intervals since then, the most recent update being in 2007, when the last period for which estimates were published was 2002–05.

In 2001 RG Social Class was replaced by the National Statistics Socio-economic Classification (NS-SEC) for the purposes of official statistics. It was possible to extend the series on trends in life expectancy by RG social class by a few years following the census, but it was clear that, since neither deaths nor census returns were to be coded by RGSC any longer, it was imperative to develop a new series using NS-SEC.

Analyses of mortality rates by NS-SEC have been undertaken using death registrations as numerators and figures based on the 2001 Census population as denominators in 'cross-sectional' studies (White *et al.*, 2007, Langford and Johnson, 2009), but these are only possible for ages up to 64 and therefore are not suitable for estimating life expectancy.

The key component of this study was to provide an NS-SEC code for occupations recorded at the 1981 Census using the occupational coding undertaken at the time. If such a classification could be produced, it would be possible to undertake a prospective study whereby those present at the 1981 Census could be classified at, or shortly after working age, and then followed up through to the 2000s. This step was particularly important for those in retirement age in the 1990s and 2000s, since the 1991 or 2001 Census may well not have captured their occupation.

The main difficulties with this approach were:

- conceptual – the change in the nature of work and contracts of employment over time make the application of NS-SEC in 1981 problematic
- practical – the lack of appropriate granularity in the 1981 Census classification system to allow mapping to modern occupation codes

It would not have been cost effective to go back to the original census returns and attempt to recode them, so some kind of 'bridge-coding' was necessary

This article describes how ONS went about constructing this bridge and the methodology adopted to overcome the problems of discontinuity. It addresses some questions related to the attribution of any socio-economic classification system, particularly for women, and presents the first results for 'life expectancy by NS-SEC'.

Methods

This section describes the NS-SEC in more detail, the reasons why it replaced the Registrar General's social class classification in official statistics, and the analytical approach adopted in this article. The key component of the analysis is the creation of an NS-SEC classification using data from the ONS Longitudinal Study (LS) relating to the 1981 Census. This process is described in detail following a brief overview of the NS-SEC and the data sources used.

The National Statistics Socio-economic Classification

Registrar General's social class based on occupation remained almost unchanged in structure for most of the 20th Century. It was based on a hierarchical view of occupational skills and general social standing, and above all, the divide between non-manual and manual occupations. While proving effective in discriminating between classes in empirical studies, changes in economic structure, such as the decline in manufacturing and the growth of the service sector, have provided practical reasons for dispensing with the classification in official statistics. Just as important, it was criticised for having no universally agreed underlying concept, (Rose & Pevalin, 2003), and therefore it was claimed that it is not clear how to interpret the meaning of differences between classes revealed by measuring mortality or other characteristics.

The conceptual basis for the NS-SEC is the structure of employment relations operating in modern developed economies (Rose & Pevalin, 2003), based on a schema developed by Goldthorpe (1997). Occupations are differentiated in terms of reward mechanisms, promotion prospects, notice periods and job security. Those occupations exhibiting a high level of such characteristics are said to be operating on a 'service contract'. Those with the least of these attributes are said to be operating under a 'labour contract'. While not designed as a hierarchy, there are differences in social advantage across the classes. The most advantaged NS-SEC groups (higher managerial and professional occupations), typically exhibit personalised reward structures, have good opportunities for advancement, relatively high levels of autonomy within the job, and are relatively secure. These attributes tend to be reversed for the most disadvantaged group (routine occupations).

Box 1 shows the NS-SEC analytic class breakdowns used in this analysis, and provides examples of the occupations included in each class.

Box 1 National Statistics Socio-economic Classification Analytic classes*

Analytic class		Examples of occupations included
1.1	Large employers and higher managerial	Senior officials in national and local government; directors and chief executives of major organisations; officers in the armed forces
1.2	Higher professional	Civil engineers, medical practitioners, physicists, geologists, IT strategy and planning professionals, legal professionals, architects
2	Lower managerial and professional	Teachers in primary and secondary schools, quantity surveyors, public service administrative professionals, social workers, nurses, IT technicians
3	Intermediate	NCOs and other ranks in the Armed Forces, graphic designers, medical and dental technicians, Civil Service administrative officers and local government clerical officers, counter clerks, school and company secretaries
4	Small employers and own account workers	Hairdressing and beauty salon proprietors, shopkeepers, dispensing opticians in private practice, farmers, self-employed taxi drivers
5	Lower supervisory and technical	Bakers and flour confectioners, screen-printers, plumbers, electricians and motor mechanics employed by others, gardeners, rail transport operatives
6	Semi-routine	Pest control officers, clothing cutters, traffic wardens, scaffolders, assemblers of vehicles, farm workers, veterinary nurses and assistants, shelf fillers
7	Routine	Hairdressing employees, floral arrangers, sewing machinists, van, bus and coach drivers, labourers, hotel porters, bar staff, cleaners and domestics, road sweepers, car park attendants

* NS-SEC User Manual, Office for National Statistics (2002)

An individual can be assigned to an NS-SEC class based on their occupation, employment status and the size of their organisation, (employment status relating to whether they are an employer, a manager, supervisor or ordinary employee). A version of NS-SEC can be derived from occupation and employment status alone. This is known as 'reduced NS-SEC' and differs in terms of its typical distribution among NS-SEC classes by about two per cent (ONS NS-SEC User Manual 2002). Reduced NS-SEC was used throughout the following analysis since size of establishment is not available for all sources of information used in this study, (for example father's or mother's occupation based classification at the birth of a child). Reduced NS-SEC was also used in previously published cross-sectional analyses of mortality rates by NS-SEC (White *et al.,* 2007), since size of establishment is not included in the data collected at death registration.

All people for whom there is sufficient information at a census on their occupation and employment status can be assigned an NS-SEC 'analytic' category such as those which appear in Box 1. The lookup table, which allows the transformation of combinations of occupation and employment status, is known as a 'derivation matrix'. A section of a derivation matrix for NS-SEC in 2001 is shown in Box 2. Every decade for which NS-SEC is to be assigned requires a derivation matrix which converts the contemporary occupation definitions and employment statuses into NS-SEC classes.

Box 2 Extract of derivation matrix for NS-SEC using occupation (SOC2000) and employment status to determine analytic class

SOC2000	Standard Occupational Classification 2000	Employers	self-employed	Manager	Supervisor	Employee
Occupa	tional Unit Group					
1111	Senior officials in national government	1.1	1.1	1.1	1.1	1.1
1112	Directors and chief executives of major organisations	1.1	1.1	1.1	1.1	1.1
1113	Senior officials in local government	4	4	1.1	1.1	1.1
1114	Senior officials of special interest organisations	4	4	2	2	2
1121	Production, works and maintenance managers	4	4	1.1	1.1	1.1
1122	Managers in construction	4	4	2	2	2
1123	Managers in mining and energy	4	4	1.1	1.1	1.1
1131	Financial managers and chartered secretaries	1.2	1.2	1.1	1.1	1.1
1132	Marketing and sales managers	4	4	1.1	1.1	1.1
1133 Purcha	sing managers	4	4	1.1	1.1	1.1
1134	Advertising and public relations managers	4	4	1.1	1.1	1.1
1135	Personnel, training and industrial relations managers	4	4	1.1	1.1	1.1
1136	Information and communication technology managers	4	4	1.1	1.1	1.1
1137	Research and development managers	1.2	1.2	1.1	1.1	1.1
1141 Quality	assurance managers	4	4	2	2	2

Source: NS-SEC User Manual, Office for National Statistics (2002)

For those who cannot be assigned an occupation-based functional NS-SEC category, there are certain other categories, such as 'full-time student', 'never worked' 'long-term unemployed' 'inadequately described'. These are known as 'residual' categories. Residual categories are reported in this analysis in aggregate as 'Unclassified', both for completeness and because a substantial proportion of them are likely to be among the most deprived, having no occupation assigned. The NS-SEC sub-divisions, such as 'Never worked' and 'Long-term unemployed' were not available at censuses before 2001. As a result, 'Unclassified' constitutes a heterogeneous category, the composition of which may change over time. Consequently, it was decided to restrict the measurement of trends in inequality to the occupation-based classes.

Further aggregations of the classes are possible, and a useful summary measure is 'condensed' NS-SEC which consists of:

1. Managerial and professional (consisting of analytic classes 1.1, 1.2 and 2, the 'service contract' groups.
2. Intermediate (consisting of analytic classes 3 and 4)
3. Routine and manual (consisting of analytic classes 5, 6 and 7, the 'labour contract' groups)

These groupings are larger and less volatile from one time period to the next than the more refined analytic classes, and sometimes give a clearer picture of trends and turning points in inequalities. For this reason, the analysis was carried out both for the seven analytical classes and the condensed NS-SEC.

Data Sources for analysis

The ONS Longitudinal Study (LS):

The LS contains linked census and vital event data for one per cent of the population of England and Wales. Information from the 1971, 1981, 1991 and 2001 Censuses has been linked together, along with information on events such as births, deaths and cancer registrations. The unique advantage of this data source for the type of analysis described in this article is that sample members can be classified according to their census characteristics, often at working age, and then followed up to measure death and survival rates for each class over time.

This allows the computation of age-specific mortality rates at older ages based on occupational data recorded at or shortly after working age, which is not possible using a cross-sectional approach, since occupation is not coded at the census for people over 74 years of age. Father's and mother's occupation is recorded for children present at a census and at birth for new babies. The LS has occupation and employment status coded for those present at censuses from 1971 to 2001 and NS-SEC for those present at the 2001 Census.

Derivation matrices for NS-SEC.

The matrix developed for the 2001 Census producing reduced NS-SEC is available from the NS-SEC user manual (ONS 2002). An approximation to NS-SEC, derived using the SOC90 occupation classification also exists and can be found in the same publication. This allows the NS-SEC classification of LS members at the 1991 Census, or for the parents of children born in the decade between the 1991 and 2001 Censuses.

As yet there is no derivation matrix for NS-SEC using the 1981 occupational classification. Therefore, the main component of the current study was to produce and validate such a matrix for use with LS data so that members may be classified at the 1981 Census or at birth between 1981 and 1991.

Analytical approach

As a result of changes in economic structure and the nature of occupations over time, the occupational classification system is reviewed every 10 years. Box 3 shows the nomenclature for the occupational and socio-economic classifications used at each census since 1981.

Box 3 The nomenclature for the occupational and socio-economic classifications used at each census since 1981

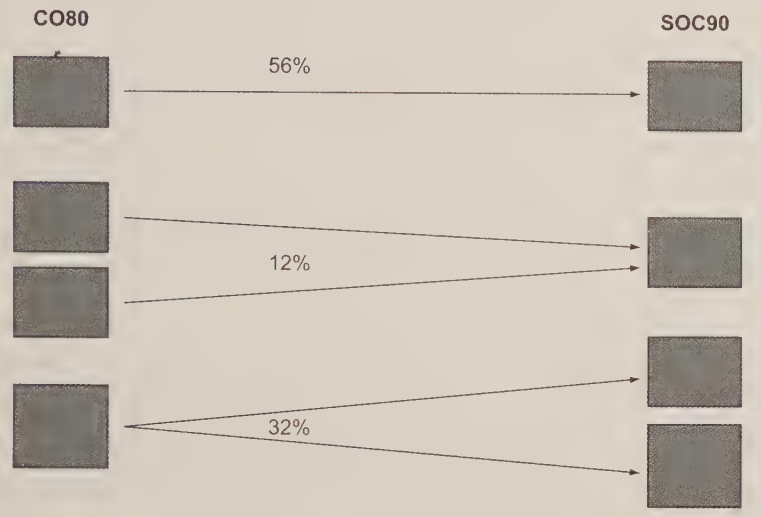
Census	Occupational Classification	Socio-economic Classification
1981	CO80	Registrar General's Social Class (RGSC)
1991	SOC90	RGSC NS-SEC90
2001	SOC2000	NS-SEC

The 1991 and 2001 derivation matrices were produced in part via detailed analysis of specially commissioned questions included in the 1996/97 Labour Force Survey (Rose and Pevalin (2003).

It would be neither practical nor economically viable to repeat this detailed analysis for the census of 1981. However, the existing degree of linkage between the 1981 occupational classification system (known as CO80) and the SOC90 classification used for the 1991 Census, from which NS-SEC90 can be derived, is sufficient to allow an approximation for NS-SEC using 1981 occupations.

Hence the NS-SEC90 derivation matrix of occupation and employment status could be used as a template from which an 'NS-SEC80' matrix can be derived. If there was a unique mapping between CO80 (1981) occupations and the SOC90 ones, this would be straightforward. However changes in the occupation classification scheme over the 10-year period result in some degree of discontinuity. The Standard Occupational Classification, Volume 3 (OPCS 1991) estimated that 56 per cent of a 0.5 per cent sample of occupations drawn from the 1981 Census population had a directly comparable SOC90 code. A further 12 per cent was capable of mapping to a SOC90 code if CO80 codes were aggregated. This left roughly 30 per cent of the 1981 population not capable of mapping to a unique SOC90 code (see Box 4).

Box 4 Correspondence between 1981 (CO80) occupational classification and SOC90



In the current study it is the 1981 Census population which needs to be mapped to a SOC90 code and via that, to an NS-SEC class – it does not matter if it is not possible to map SOC90 categories to unique CO80 ones, (Box 4). That is to say, it is occupations in 1991 for which there is no 1981 equivalent, which provided the problem (for example: Software engineers who were grouped together with Computer systems and data processing managers and with Computer analyst/programmers in 1981).

There were three categories of CO80 occupation:

1. Those which mapped directly to a single SOC90 code
2. Those which mapped to more than one SOC90 codes, but all relevant SOC90 codes produced a unique NS-SEC analytic class when combined with employment status
3. Those which mapped to more than one SOC90 code, at least two of which were associated with different NS-SEC classes (even when employment status was the same)

Only the third category presents problems, since the other two produce unique analytic classes.

The scale of the problem could be tested empirically, since the 1991 Census occupations were dual coded on the LS both to the 1981 and 1991 classifications. For each 1981 occupation code, where there was no unique mapping to SOC90, the population assigned to each analytic NS-SEC class could be measured. This allowed the measurement of the size of the population for which the combination of 1981 occupation and employment status did not uniquely determine NS-SEC class.

For example, CO80 occupation number 43, (nurse administrators and nurses), maps to SOC90 occupations 340 (nurses), 640 (assistant nurses, nursing auxiliaries) and 643 (dental nurses). The number in the sample having this occupation and an employment status of employee as follows:

NS-SEC	Class 2 (lower professional)	4,461
	Class 3 (intermediate)	1,857
	Class 6 (semi-routine)	240

(The heterogeneity of this CO80 occupation group and the problems it posed for social classification was referred to by Elias (1997)).The simplest approach is to choose the NS-SEC class with the greatest population (in the above case class 2), for that combination of occupation and employment status and apply that class in the appropriate cell of the derivation matrix. In cells where the ratios between the most and least represented NS-SEC classes were very high (10 to 1 or more) and the minority group had less than 10 members in the sample, this approach was used.

However, to use this simple majority method in the above instance would result in the incorrect assignment to NS-SEC of a substantial number of sample members. Additional information, which was available in 1981 and could be empirically tested using the dual coded 1991 Census data, was sought for these problematic cells of the matrix. Only 'industry code' and 'industry size' were found to discriminate in cells where there were multiple potential NS-SEC classes. In the example given above, nearly all the NS-SEC class 6 population related to dental nurses. These were not separated from other nurses by CO80, but where the industry code was 'dental practices', almost all the population was assigned to class 6 in 1991. Where industry code was found to be useful in this context, it was used to adjust the cells of the derivation matrix. The impact of industry code on the precision of the classification is reported in the Results section below.

A further test of validity of the method was performed by applying it to the dual coded deaths registrations for 1993. In each case it was possible to determine the proportion of erroneous classifications made using the 1981 derivation matrix constructed as described above.

Assignment of NS-SEC class

Once the 1981 derivation matrix was produced, it was possible to classify LS members present at 1981 by their own or by their spouse's, father's or mother's class, if the occupation of any of the latter was recorded at the census.

The standard approach to assigning class for the 'life expectancy by social class' series was to classify sample members on entry to the study, after Hattersley (1997). Where possible, an individual's own NS-SEC class was used. For those with no assigned occupation and who were married, spouse's class was used. For those who were children at a census, father's class was used, and failing that mother's. For new births where the child was not recorded at the following census, father's class at birth was used, and failing that, mother's. Immigrants were assigned an NS-SEC class at the first census at which they were present. If they were not present at any census they were excluded from the study since there was no way of assigning a class to them and they may have gone abroad without this fact being recorded, and therefore no longer 'at risk' (Johnson and Blackwell, 2007). If none of this information resulted in the sample member being assigned a class, they were coded as 'Unclassified'

The main rationale for assigning class at the earliest possible point after entry to the study is that, in a prospective study, it is important that the assignment of class is not influenced by the fact of

death or survival. An additional benefit is that the longer the period of follow up, the less prevalent are health selection effects. These occur when some sample members cannot be classified by occupation owing to poor health when assignment of class takes place. These members have a relatively high probability of dying soon after assignment of class. This health selection out of the labour market disproportionately affects Routine and manual occupations, so a bias may be introduced where those in the least advantaged classes appear to have a lower mortality rate relative to others, in the period immediately following classification, than they otherwise would have done (Fox *et al.,* 1985).

The earlier that assignment takes place, and therefore the longer the period of follow up, the less effect selection will have upon the estimates, since those sample members who were sick at the point of assignment will tend either to die or to recover over time.

There is also some evidence that socio-economic position in early years is more influential on health outcomes than status in later life (The Black Report 1980, White *et al.,* 2005).

Taking into account the above and the history of these estimates, the following approach was decided upon: NS-SEC was derived for sample members and their spouses for each census between 1981 and 2001 at which they were present, or at birth for children born after census day in 1981, based on their father's or mother's class, if available. Therefore, for a given sample member, there was frequently more than one class that they could potentially be assigned to. The next stage was to apply a set of rules assigning class to each sample member.

The method of assignment followed the standard approach described above.

A second method classified people by the most advantaged of their own and their spouse's class, and children by the most advantaged of their father's and mother's class. This 'combined' approach is based on a concept of Erikson (1984) and was used in the cross-sectional study of inequalities in mortality rates of women of working age by NS-SEC (Langford and Johnson, 2009). It perhaps provides a more relevant assessment of a person's socio-economic position than one based on primacy of one's own class. While this is not a true 'household' measure of socio-economic position, it is useful to determine the sensitivity of the life expectancy estimates to a more family based assignment of class, particularly for women, for some of whom, access to social and economic resources are less defined by the labour market than they are for men.

Calculating life expectancy

Period life expectancy for a particular NS-SEC class is the average number of years a person would live, if he or she experienced the age-specific mortality rates for that time period, (for example 2002–06), for that class throughout his or her life. It makes no allowance for any future changes in age-specific mortality rates. Period life expectancies are a useful measure of mortality rates actually experienced in a given period and provide an objective means of comparison of the trends in mortality over time, between areas of a country and with other countries. Official life tables in the UK and in other countries which relate to past years are generally period life tables for these reasons. Cohort life expectancies, which attempt to project the actual number of years someone living now can expect to live, usually require projected mortality rates for their calculation and hence, in such cases, involve an element of judgement about future trends.

Life tables are driven by age-specific mortality rates which were derived (for five-year age bands) using deaths and person years survived at risk for each NS-SEC class occurring in each five year period from 1982, calculated using Stata software. The tables, including variances and confidence intervals were derived using ONS standard methodology based on Chiang's method for deriving q_x, (the probability of death in each interval) and variances (Chiang, 1968).

While the LS does not suffer attrition in the way that many surveys do, it is well documented that there are 'losses to follow up' where existing sample members are not present at a census and yet have no record of death or embarkation. Methods for dealing with this problem were explored in depth in Johnson and Blackwell (2007), and analogous methods were used in this paper. Sensitivity tests were carried out to measure the impact on the results of different approaches to excluding sample members who were possibly no longer at risk.

Results

Table 1 shows the prediction of reduced NS-SEC using the 1981 derivation matrix against those based on the 1991 matrix and SOC90 occupation codes for males and females under aged 75 in 1993.

Table 1 Cross-tabulation of death registrations in 1993 classified according to NS-SEC[1] based on 1981 occupation (NS-SEC80) and 1991 occupation (NS-SEC90)

England and Wales

	1981 occupation (NS-SEC80) and 1991 occupation (NS-SEC90)								
NS-SEC based on 1981 occupation	**NS-SEC90**								
	1.1	**1.2**	**2**	**3**	**4**	**5**	**6**	**7**	
1.1 Large employers & higher managers	4,823	20	50	0	0	0	0	0	4,893
1.2 Higher professional	4	6143	38	33	0	0	0	0	6,218
2 Lower managerial & professional	216	89	24,049	828	6	40	33	0	25,261
3 Intermediate	0	11	40	20,771	0	0	50	36	20,908
4 Small employers & own a/c workers	0	18	0	0	15,026	0	0	0	15,044
5 Lower supervisory & technical	0	0	0	0	0	22,701	113	242	23,056
6 Semi-routine	0	0	0	191	0	76	33,056	636	33,959
7 Routine	0	0	0	0	0	16	187	46,615	46,818
Total	**5,043**	**6281**	**24,177**	**21,823**	**15,032**	**22,833**	**33,439**	**47,529**	**176,157**

1 Reduced derivation, children classified according to mother's occupation.

The proportion of the population in off-diagonal cells represents the 'error' in assignment when 1981 occupational information is used to derive NS-SEC, using the simple majority method for assigning NS-SEC to ambiguous cells. The percentage error measured in this way was 1.7 per cent.

A slightly greater error of 2.5 per cent was found when applying a similar method to the dual-coded LS 1991 Census occupation data – the constructed 1981 derivation matrix was used to predict NS-SEC90 codes for sample members based on their occupation code . This scale of error is fairly small relative to the generally accepted levels of routine error in form completion and coding. However, since these errors are systematic rather than random, it is important that they are as small as possible.

The error was reduced to just under 1 per cent when industry codes were used to discriminate in cases where the NS-SEC class was ambiguous.

Tables 2a and 2b show the main results of the study for males at birth and at age 65 respectively, using the conventional method for assignment of socio-economic class, (as used for the 'Trends in life expectancy by Social Class' series). The results are shown both for the seven analytic NS-SEC classes and for the condensed three-class schema. Class 1 (Higher managerial and professional) was split into its two components: 1.1 Large employers and higher managerial and 1.2 Higher professional occupations), since previous studies have found significant differences between the two subgroups. However, the confidence intervals for both classes 1.1 and 1.2 were relatively wide

and so in estimating the range in life expectancy, from most to least advantaged, the whole of NS-SEC class 1 was used in order to reduce the volatility from one period to the next resulting from sampling variance. The life expectancy of those unclassified by occupation is also shown. Owing to the potential change in composition of this group over time and selection effects, it was not used in estimating the range from most to least advantaged.

Figure 1 shows graphically life expectancy at birth by analytic class NS-SEC for men.

Table 3 shows the change in life expectancy for males for each analytical class over the whole study period and between the periods 1997–2001 to 2002–06 to aid comparison of classes over time.

Table 4 shows the corresponding estimates by social class for comparison with those by NS-SEC. These were previously published for the period 1972–2005 and are now updated to include 2006 in the latest reported period.

Tables 5a and 5b, 6 and 7 and Figure 2 show the corresponding information for women.

Table 2a Life expectancy by NS-SEC class, males at birth

England and Wales

Years

NS-SEC	1982–86 LE	95% CI (+/-)	1987–91 LE	95% CI (+/-)	1992–96 LE	95% CI (+/-)	1997–2001 LE	95% CI (+/-)	2002–06 LE	95% CI (+/-)
	At birth									
Analytic classes										
1. Higher managerial & professional	75.6	0.7	76.6	0.6	77.5	0.6	78.8	0.7	80.4	0.6
1.1 Large employers & higher managers	75.1	1.1	75.6	1.0	77.0	1.0	79.0	1.0	79.9	0.9
1.2 Higher professional	76.5	1.1	77.7	0.9	78.0	0.9	78.5	0.9	80.6	0.8
2 Lower managerial & professional	74.3	0.7	75.4	0.6	76.5	0.6	78.2	0.5	79.6	0.5
3 Intermediate	73.3	0.8	74.5	0.8	75.3	0.8	76.8	0.8	78.5	0.8
4 Small employers & own a/c workers	73.6	0.8	74.4	0.8	75.6	0.7	76.6	0.7	77.8	0.7
5 Lower supervisory & technical	72.3	0.6	73.2	0.6	73.8	0.6	75.3	0.6	76.8	0.6
6 Semi-routine	71.3	0.6	71.7	0.6	72.4	0.6	74.0	0.6	75.1	0.6
7 Routine	70.7	0.5	71.5	0.5	71.6	0.5	72.6	0.5	74.6	0.5
Range highest- lowest	4.9		5.1		5.9		6.2		5.8	
Condensed NS-SEC										
Managerial & professional	74.8	0.5	75.9	0.4	77.0	0.4	78.4	0.4	80.0	0.4
Intermediate	73.5	0.5	74.5	0.5	75.5	0.5	76.7	0.5	78.1	0.5
Routine & manual	71.4	0.3	72.0	0.3	72.5	0.3	73.8	0.3	75.4	0.3
Range highest- lowest	3.4		3.9		4.5		4.6		4.6	
Unclassified	60.2	1.4	60.3	1.2	65.8	1.3	67.2	1.2	71.5	1.1
All Men	71.7	0.2	72.6	0.2	73.8	0.2	75.2	0.2	77.0	0.2

Source: ONS Longitudinal Study

Table 2b Life expectancy by NS-SEC class, males at age 65

England and Wales — Years

NS-SEC	1982–86 LE	1982–86 95% CI (+/-)	1987–91 LE	1987–91 95% CI (+/-)	1992–96 LE	1992–96 95% CI (+/-)	1997–2001 LE	1997–2001 95% CI (+/-)	2002–06 LE	2002–06 95% CI (+/-)
	At age 65									
Analytic classes										
1. Higher managerial & professional	15.2	0.6	15.9	0.5	16.6	0.5	18.1	0.5	18.8	0.4
1.1 Large employers & higher managers	14.5	0.8	15.1	0.7	16.2	0.7	18.0	0.7	18.7	0.6
1.2 Higher professional	16.2	0.8	16.7	0.7	17.0	0.7	18.3	0.6	18.9	0.6
2 Lower managerial & professional	15.1	0.5	15.4	0.4	16.0	0.4	17.2	0.4	18.2	0.4
3 Intermediate	13.9	0.5	15.0	0.5	15.7	0.5	16.4	0.5	17.5	0.5
4 Small employers & own a/c workers	14.0	0.5	14.7	0.5	15.5	0.5	16.1	0.5	17.5	0.5
5 Lower supervisory & technical	13.4	0.4	13.7	0.3	14.5	0.3	15.3	0.3	16.4	0.4
6 Semi-routine	12.9	0.4	13.3	0.3	13.8	0.3	14.7	0.4	15.6	0.4
7 Routine	12.9	0.3	13.1	0.3	13.4	0.3	14.0	0.3	15.3	0.3
Range highest- lowest	2.3		2.8		3.2		4.1		3.5	
Condensed NS-SEC										
Managerial & Professional	15.1	0.4	15.6	0.3	16.2	0.3	17.6	0.3	18.4	0.3
Intermediate	13.9	0.4	14.8	0.4	15.6	0.4	16.2	0.3	17.5	0.3
Routine & Manual	13.0	0.2	13.3	0.2	13.9	0.2	14.6	0.2	15.8	0.2
Range highest- lowest	2.1		2.3		2.4		3.0		2.7	
Unclassified	11.1	0.3	10.2	0.4	11.2	0.6	12.0	0.7	14.2	0.7
All Men	13.1	0.1	13.7	0.1	14.5	0.1	15.5	0.1	16.7	0.1

Source: ONS Longitudinal Study

Table 2a shows that for men, there was a clear gradient in life expectancy at birth from the most to the least advantaged, at both birth and age 65, as was seen for RG Social Class.

However, higher professionals, (class 1.2) appeared to have a higher life expectancy than large employers and higher managers (class 1.1) in most periods. Differences between the two classes were not statistically significant for periods from 1992 onwards.

Only the differences between NS-SEC class 4, the self-employed and own account occupations, and class 5 (lower supervisory and technical occupations), and between class 5 and class 6 (semi-routine) were statistically significant in every period, but the pattern of the gradient through time suggests that it is a persistent phenomenon. The largest gap between any two adjacent analytical classes in 2002–06 was between lower supervisory and technical occupations and semi-routine occupations (1.7 years). The range in years between the classes with the highest and the lowest life expectancies at birth widened over time from 4.9 years in 1982–86 to 6.2 years in 1997–2001. The gap narrowed to 5.8 years in 2002–06 but this was not a statistically significant change.

The pattern of the range over time was similar for the 3-class condensed version of NS-SEC, but this did not exhibit narrowing in the latest period. The reason for the difference was that the least advantaged of the analytic classes (Routine occupations) was responsible for a high proportion of the increase in the life expectancy of the 'labour contract' group. Table 3 shows that the Routine occupations class had the second highest increase in life expectancy of any class between the periods 1997–2001 and 2002–06, while the Lower supervisory and technical class and semi-routine occupations class had only average increases. Table 3 also shows that, over the whole study period, the Routine class had the second lowest increase over the whole period and the Routine and manual grouping had the lowest aggregate increase of the condensed NS-SEC classes.

Table 3 Change in life expectancy at birth and at age 65 by NS-SEC, males

England and Wales — Years

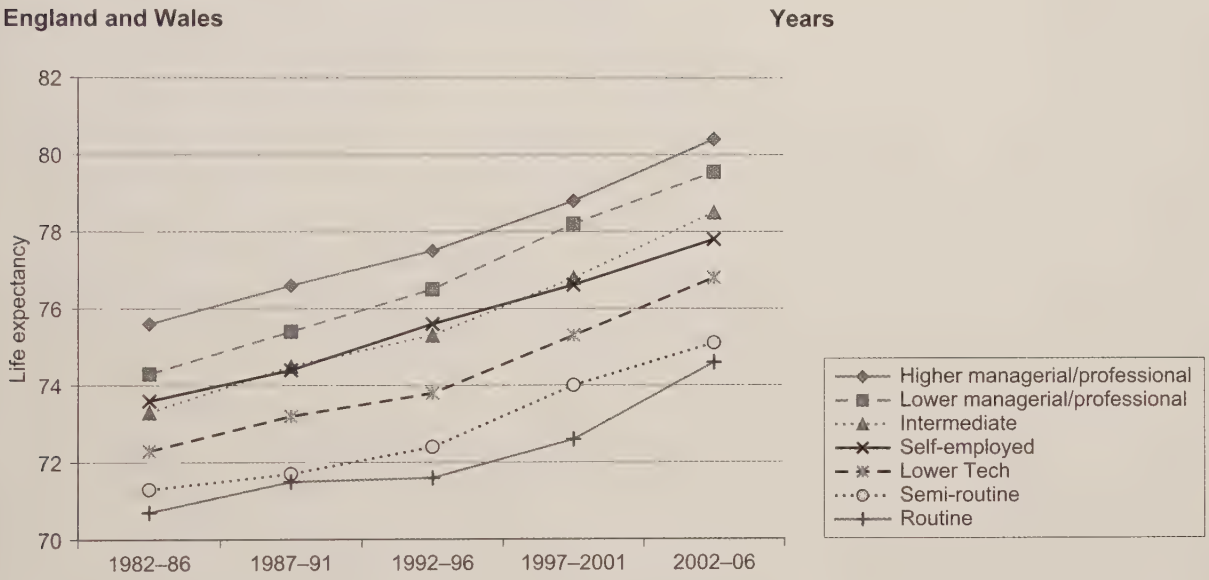
NS-SEC	At birth	Change between 1982–86 and 2002–06	Change between 1997–01 and 2002–06
Analytic classes			
1. Higher managerial & professional		4.8	1.6
1.1 Large employers & higher managers		4.8	0.9
1.2 Higher professional		4.1	2.1
2 Lower managerial & professional		5.3	1.4
3 Intermediate		5.2	1.7
4 Small employers & own a/c workers		4.2	1.2
5 Lower supervisory & technical		4.5	1.5
6 Semi-routine		3.8	1.1
7 Routine		3.9	2.0
Condensed NS-SEC			
Managerial & professional		5.2	1.6
Intermediate		4.6	1.4
Routine & manual		4.0	1.7
Unclassified		11.3	4.3
All Men	5.3		1.8
	At age 65		
Analytic classes			
1. Higher managerial & professional		3.6	0.7
1.1 Large employers & higher managers		4.2	0.7
1.2 Higher professional		2.7	0.6
2 Lower managerial & professional		3.1	1.0
3 Intermediate		3.6	1.1
4 Small employers & own a/c workers		3.5	1.4
5 Lower supervisory & technical		3.0	1.1
6 Semi-routine		2.7	0.9
7 Routine		2.5	1.3
Condensed NS-SEC			
Managerial & professional		3.3	0.9
Intermediate		3.6	1.3
Routine & manual		2.8	1.2
Unclassified		3.1	2.2
All Men	3.6		1.3

Figure 1 illustrates this pattern. The Intermediate and the self-employed, and own account occupations had the closest path over time. There appear to be clear gaps between occupations with the three major types of employment contract. There was also a persistent gap of between 1.5 and 2 years between Class 5 (Lower supervisory and technical) and Class 6 (Semi-routine).

Table 2b suggests that a similar pattern across the classes was observed age 65 as at birth. The gap widened from 2.3 years in 1982–86 to 4.1 years in 1997–2001 and then narrowed to 3.5 years in 2002–06.

Those unclassified by occupation had consistently lower life expectancy than the analytic classes.

Figure 1 **Life expectancy by NS-SEC class, males at birth**



Source: ONS Longitudinal Study

Table 4 Life Expectancy at birth and at age 65 by social class, males

England and Wales — Years

	1972–76		1977–81		1982–86		1987–91		1992–96		1997–2001		2002–06	
Social Class	LE	95% CI (+/-)	LE	95% CI (+/-)	LE	95% CI (+/-)	LE	95% CI (+/-)	LE	95% CI (+/-)	LE	95% CI (+/-)	LE	95 % CI (+/-)
	At birth													
I Professionals	71.9	*1.2*	74.4	*1.2*	75.1	*1.1*	76.2	*1.0*	77.9	*0.9*	79.5	*0.9*	80.4	*1.0*
II Managerial & Tech	71.9	*0.6*	72.6	*0.6*	74.1	*0.5*	75.0	*0.5*	76.0	*0.5*	77.9	*0.5*	79.4	*0.5*
IIIN Skilled non-manual	69.5	*0.8*	71.1	*0.7*	72.5	*0.7*	74.4	*0.7*	75.2	*0.7*	76.9	*0.7*	78.6	*0.7*
IIIM Skilled manual	70.0	*0.4*	70.0	*0.4*	71.7	*0.4*	72.7	*0.4*	73.7	*0.4*	74.7	*0.4*	76.5	*0.4*
IV Semi-skilled manual	68.3	*0.7*	69.0	*0.6*	71.0	*0.6*	70.8	*0.6*	72.8	*0.6*	73.4	*0.6*	75.7	*0.6*
V Unskilled manual	66.5	*1.1*	67.4	*1.1*	67.7	*1.0*	68.6	*1.0*	68.5	*1.0*	71.3	*0.9*	73.0	*1.1*
Range	5.4		7.0		7.3		7.6		9.4		8.2		7.4	
All men	**69.3**	***0.3***	**70.1**	***0.3***	**71.7**	***0.2***	**72.6**	***0.2***	**73.7**	***0.2***	**75.2**	***0.2***	**77.0**	***0.2***
Non-manual	71.2	*0.4*	72.3	*0.4*	73.7	*0.4*	75.0	*0.4*	76.1	*0.4*	77.8	*0.4*	79.3	*0.4*
Manual	69.1	*0.3*	69.4	*0.3*	71.0	*0.3*	71.7	*0.3*	72.9	*0.3*	74.0	*0.3*	75.9	*0.3*
Difference	**2.1**	***0.5***	**2.9**	***0.5***	**2.7**	***0.5***	**3.3**	***0.5***	**3.2**	***0.5***	**3.8**	***0.5***	**3.4**	***0.5***
	At age 65													
I Professionals	14.0	*0.9*	15.5	*0.9*	15.5	*0.8*	15.8	*0.7*	17.0	*0.7*	18.2	*0.6*	18.6	*0.6*
II Managerial & Tech	13.3	*0.4*	14.2	*0.3*	14.5	*0.3*	15.0	*0.3*	15.6	*0.3*	17.0	*0.3*	18.1	*0.3*
IIIN Skilled non-manual	12.6	*0.4*	13.3	*0.4*	13.6	*0.4*	14.3	*0.4*	15.3	*0.4*	16.6	*0.4*	17.5	*0.5*
IIIM Skilled manual	12.2	*0.2*	12.5	*0.2*	13.1	*0.2*	13.6	*0.2*	14.3	*0.2*	15.2	*0.2*	16.3	*0.3*
IV Semi-skilled manual	12.2	*0.3*	12.1	*0.3*	12.7	*0.3*	12.8	*0.3*	13.9	*0.3*	14.0	*0.3*	15.8	*0.4*
V Unskilled manual	11.6	*0.4*	11.8	*0.4*	11.6	*0.4*	12.0	*0.5*	12.5	*0.5*	13.1	*0.5*	14.5	*0.7*
Range	2.5		3.7		3.9		3.7		4.5		5.1		4.1	
All men	**12.3**	***0.1***	**12.6**	***0.1***	**13.1**	***0.1***	**13.7**	***0.1***	**14.5**	***0.1***	**15.5**	***0.1***	**16.7**	***0.2***
Non-manual	13.1	*0.3*	14.0	*0.3*	14.3	*0.2*	14.9	*0.2*	15.7	*0.2*	17.1	*0.2*	18.0	*0.3*
Manual	12.1	*0.2*	12.3	*0.2*	12.7	*0.2*	13.2	*0.2*	14.0	*0.2*	14.6	*0.2*	16.0	*0.2*
Difference	**1.0**	***0.3***	**1.7**	***0.3***	**1.6**	***0.3***	**1.7**	***0.3***	**1.7**	***0.3***	**2.5**	***0.3***	**2.0**	***0.3***

Source: ONS Longitudinal Study

Comparison with Table 4 showing life expectancy by social class for males, shows that the ranges are similar for both NS-SEC and RG social class. The range between the most and least advantaged classes is not as great for NS-SEC as for social class, (5.8 years in 2002–06 for NS-SEC compared with 7.4 years for social class). The main reason is that Social Class V, 'unskilled manual occupations', is a smaller class than 'Routine occupations' in the NS-SEC schema. In both cases there is a narrowing of the range in the most recent period. This narrowing was statistically significant for social class at age 65. At birth the widest gap between social classes I and V was in 1992–96, rather than 1997–2001. This was almost certainly a result of the small size and consequently wide confidence interval (in excess of one year) for social class V.

Table 5a shows that there was also a persistent socio-economic gradient for females. As for men, higher professionals tended to have a higher life expectancy than higher managers, although the difference between these classes was only statistically significant for the most recent period. The range between the highest and lowest life expectancy was smaller than for men (4.2 years at birth and 3.2 years at age 65, compared with 5.8 years and 3.5 years for men in the period 2002–06).

Table 5a Life expectancy by NS-SEC class, females at birth

England and Wales — Years

NS-SEC	1982–86 LE	95% CI (+/-)	1987–91 LE	95% CI (+/-)	1992–96 LE	95% CI (+/-)	1997–2001 LE	95% CI (+/-)	2002–06 LE	95% CI (+/-)
	At birth									
Analytic classes										
1. Higher managerial & professional	80.9	*1.1*	81.7	*1.0*	82.3	*0.9*	82.6	*0.8*	83.9	*0.7*
1.1 Large employers & higher managers	79.9	*1.7*	82.3	*1.5*	82.7	*1.3*	81.9	*1.2*	83.0	*1.1*
1.2 Higher professional	82.1	*1.5*	81.5	*1.3*	82.0	*1.3*	83.0	*1.1*	84.8	*1.0*
2 Lower managerial & professional	79.7	*0.7*	81.0	*0.6*	81.2	*0.5*	82.2	*0.5*	83.4	*0.5*
3 Intermediate	79.6	*0.7*	81.1	*0.7*	81.4	*0.6*	81.5	*0.6*	82.7	*0.6*
4 Small employers & own a/c workers	79.1	*1.0*	79.9	*0.9*	80.7	*0.9*	80.8	*0.8*	82.6	*0.8*
5 Lower supervisory & technical	78.5	*0.9*	78.1	*0.8*	79.4	*0.7*	79.5	*0.7*	80.4	*0.7*
6 Semi-routine	78.1	*0.6*	78.5	*0.6*	79.2	*0.6*	79.6	*0.5*	80.6	*0.6*
7 Routine	77.1	*0.6*	77.5	*0.6*	78.3	*0.5*	78.6	*0.5*	79.7	*0.5*
Range highest- lowest	3.8		4.2		4.0		4.0		4.2	
Condensed NS-SEC										
Managerial & professional	80.1	*0.6*	81.2	*0.5*	81.5	*0.5*	82.3	*0.4*	83.5	*0.4*
Intermediate	79.6	*0.6*	80.7	*0.5*	81.1	*0.5*	81.4	*0.4*	82.7	*0.4*
Routine & manual	77.7	*0.4*	78.0	*0.4*	78.9	*0.3*	79.2	*0.3*	80.2	*0.3*
Range highest- lowest	2.4		3.2		2.6		3.1		3.3	
Unclassified	71.5	*1.1*	73.1	*1.0*	74.2	*1.2*	75.8	*0.9*	76.9	*0.9*
All Women	77.4	*0.2*	78.3	*0.2*	79.2	*0.2*	79.9	*0.2*	81.1	*0.2*

Source: ONS Longitudinal Study

Table 5b Life expectancy by NS-SEC class, females at age 65

England and Wales

Years

NS-SEC	1982–86 LE	95% CI (+/-)	1987–91 LE	95% CI (+/-)	1992–96 LE	95% CI (+/-)	1997–2001 LE	95% CI (+/-)	2002–06 LE	95% CI (+/-)
	At age 65									
Analytic classes										
1. Higher managerial & professional	19.7	*1.0*	20.1	*0.8*	20.8	*0.7*	20.9	*0.6*	21.7	*0.6*
1.1 Large employers & higher managers	19.4	*1.5*	20.6	*1.4*	20.9	*1.1*	20.4	*0.9*	21.1	*0.8*
1.2 Higher professional	20.0	*1.3*	19.8	*1.0*	20.6	*1.0*	21.4	*0.9*	22.2	*0.8*
2 Lower managerial & professional	18.9	*0.6*	19.4	*0.5*	19.3	*0.4*	20.3	*0.4*	21.1	*0.4*
3 Intermediate	18.3	*0.6*	19.5	*0.5*	19.6	*0.4*	19.8	*0.4*	20.5	*0.4*
4 Small employers & own a/c workers	18.6	*0.8*	18.9	*0.7*	19.6	*0.6*	19.1	*0.6*	20.5	*0.6*
5 Lower supervisory & technical	18.7	*0.7*	17.6	*0.5*	18.3	*0.5*	18.3	*0.5*	18.8	*0.5*
6 Semi-routine	17.4	*0.5*	17.6	*0.4*	18.3	*0.4*	18.4	*0.3*	19.4	*0.3*
7 Routine	16.7	*0.4*	17.4	*0.4*	17.7	*0.3*	17.8	*0.3*	18.5	*0.3*
Range highest- lowest	3.0		2.7		3.1		3.1		3.2	
Condensed NS-SEC										
Managerial & professional	19.1	*0.5*	19.6	*0.4*	19.7	*0.4*	20.5	*0.3*	21.3	*0.3*
Intermediate	18.4	*0.5*	19.3	*0.4*	19.6	*0.4*	19.6	*0.3*	20.5	*0.3*
Routine & manual	17.3	*0.3*	17.5	*0.2*	18.0	*0.2*	18.1	*0.2*	18.9	*0.2*
Range highest- lowest	1.7		2.1		1.6		2.3		2.4	
Unclassified	16.2	*0.2*	16.2	*0.3*	16.3	*0.3*	16.6	*0.4*	17.4	*0.5*
All Women	17.0	*0.1*	17.5	*0.1*	18.0	*0.1*	18.5	*0.1*	19.5	*0.1*

Source: ONS Longitudinal Study

The range did not show the same pattern as for men, with no identifiable trend and no sign of a narrowing between the most and least advantaged. The greatest relative change among classes appeared to be the growth of the life expectancy of Classes 2 (Lower professional) and 4 (Self-employed and own-account occupations). The latter class closed the gap between it and the intermediate class from 1.2 years in 1987–91 to a negligible 0.1 years in 2002–06. As for men, there was a clear difference between the 'labour contract' group, (the least advantaged), and the intermediate group, but in the case of women, this difference was greater as a proportion of the overall range across the classes. Table 6 suggests that the three labour contract analytic classes were those with the least increase in life expectancy over the study period.

Table 6 Change in life expectancy at birth and at age 65 by NS-SEC, females

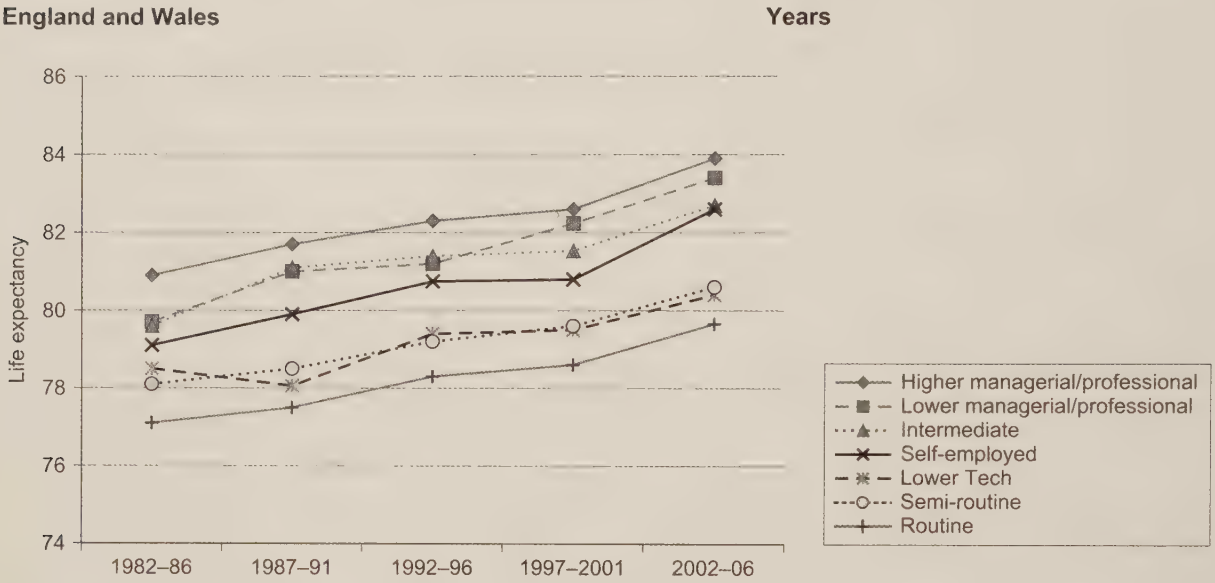
England and Wales

Years

NS-SEC	At birth	Change between 1982–86 and 2002–06	Change between 1997–2001 and 2002–06
Analytic classes			
1. Higher managerial & professional		3.0	1.3
1.1 Large employers & higher managers		3.1	1.1
1.2 Higher professional		2.7	1.8
2 Lower managerial & professional		3.7	1.2
3 Intermediate		3.1	1.2
4 Small employers & own a/c workers		3.5	1.8
5 Lower supervisory & technical		1.9	0.9
6 Semi-routine		2.5	1.0
7 Routine		2.6	1.1
Condensed NS-SEC			
Managerial & professional		3.4	1.2
Intermediate 3.1			1.3
Routine & manual		2.5	1.0
Unclassified 5.4			1.1
All Women		3.7	1.2
	At age 65		
8 analytic classes			
1. Higher managerial & professional		2.0	0.8
1.1 Large employers & higher managers		1.7	0.7
1.2 Higher professional		2.2	0.8
2 Lower managerial & professional		2.2	0.8
3 Intermediate		2.2	0.7
4 Small employers & own a/c workers		1.9	1.4
5 Lower supervisory & technical		0.1	0.4
6 Semi-routine		2.0	1.0
7 Routine		1.8	0.7
Condensed NS-SEC			
Managerial & professional		2.2	0.8
Intermediate 2.1			0.8
Routine & manual		1.6	0.8
Unclassified 1.2			0.8
All Women	2.5		0.9

Figure 2 illustrates the relative increase in the life expectancy of the self-employed and own account workers and the persistent gap between the labour contract occupations and the rest.

Figure 2 **Life expectancy by NS-SEC class, females at birth**



Source: ONS Longitudinal Study

Table 7 Life Expectancy at birth and at age 65 by social class, females

England and Wales

Years

	1972–76		1977–81		1982–86		1987–91		1992–96		1997–2001		2002–06	
Social Class	LE	95% CI (+/-)	LE	95% CI (+/-)	LE	95% CI (+/-)	LE	95% CI (+/-)	LE	95% CI (+/-)	LE	95% CI (+/-)	LE	95% CI (+/-)
	At birth													
I Professionals	79.0	1.9	80.1	1.7	80.7	1.3	81.1	1.1	83.8	1.1	82.5	1.0	85.2	1.1
II Managerial & tech	77.1	0.6	78.3	0.6	78.8	0.5	80.7	0.5	81.3	0.5	81.7	0.5	83.1	0.5
IIIN Skilled non-manual	78.3	0.7	78.2	0.7	79.0	0.6	80.0	0.5	80.7	0.5	81.6	0.5	82.5	0.5
IIIM Skilled manual	75.2	0.6	76.3	0.5	77.3	0.5	77.9	0.5	79.1	0.4	79.4	0.4	80.6	0.5
IV Semi-skilled manual	75.3	0.7	75.9	0.6	77.5	0.6	77.4	0.5	78.1	0.5	78.7	0.5	79.9	0.6
V Unskilled manual	74.2	1.2	75.6	1.0	75.9	0.9	76.6	0.9	77.4	0.9	77.8	0.9	78.3	1.2
Range	4.8		4.4		4.8		4.5		6.4		4.7		6.9	
All women	75.3	0.3	76.5	0.2	77.4	0.2	78.3	0.2	79.1	0.2	79.9	0.2	81.1	0.2
Non-manual	77.7	0.4	78.4	0.4	79.0	0.4	80.4	0.3	81.2	0.3	81.7	0.3	82.9	0.3
Manual	75.2	0.4	76.0	0.4	77.2	0.3	77.5	0.3	78.4	0.3	78.9	0.3	80.0	0.3
Difference	2.5	0.6	2.4	0.5	1.9	0.5	2.9	0.5	2.8	0.4	2.8	0.4	2.9	0.5
	At age 65													
I Professionals	19.1	1.7	20.0	1.5	18.9	1.1	19.0	0.8	21.1	0.9	20.7	0.8	22.0	0.9
II Managerial & tech	17.2	0.4	17.8	0.4	18.2	0.4	19.2	0.3	19.7	0.3	20.0	0.3	21.0	0.3
IIIN Skilled non-manual	17.9	0.6	17.7	0.4	18.2	0.4	18.7	0.3	19.2	0.3	19.8	0.3	20.1	0.3
IIIM Skilled manual	16.4	0.5	16.9	0.4	16.9	0.3	17.2	0.3	18.1	0.3	18.2	0.3	18.8	0.4
IV Semi-skilled manual	16.9	0.4	16.8	0.3	17.5	0.3	17.3	0.3	17.4	0.3	17.9	0.3	19.0	0.3
V Unskilled manual	16.6	0.7	16.4	0.6	16.2	0.5	16.3	0.5	16.6	0.5	16.8	0.5	17.7	0.6
Range	2.5		3.6		2.7		2.7		4.5		3.9		4.2	
All women	16.3	0.1	16.7	0.1	17.0	0.1	17.5	0.1	18.0	0.1	18.5	0.1	19.5	0.2
Non-manual	17.5	0.3	17.9	0.3	18.2	0.2	18.9	0.2	19.5	0.2	19.9	0.2	20.6	0.2
Manual	16.6	0.3	16.8	0.2	17.0	0.2	17.1	0.2	17.5	0.2	17.8	0.2	18.7	0.2
Difference	0.9	0.4	1.1	0.4	1.2	0.3	1.8	0.3	2.0	0.3	2.1	0.3	1.9	0.3

Source: ONS Longitudinal Study

In comparison with the results by social class, shown in Table 7, the range between the most and least advantaged was smaller and more stable for NS-SEC than for social class, again possibly because of the small size and greater variation in social class V. Condensed NS-SEC showed a similar range and pattern to the non-manual/manual divide by social class at birth, although the pattern at age 65 was slightly different.

The results of using a 'combined' measure of classification of spouses or fathers and mothers of children are shown in Tables A1 and A2 of the Appendix. The main effect of using the combined measure of NS-SEC was to widen the gap slightly between the most and the least advantaged, both for men and for women. In 2002–06 this widening was 0.2 years for males at birth and 1.1 years for females. This was a result of the decrease in the life expectancy estimates of the Routine class under the 'combined' rule in both cases. The narrowing of the range between highest and lowest in the most recent period was more pronounced for men under the combined classification, reducing from 6.8 years to 6.0. For men at age 65, the reduction in the gap in the most recent period was from 4.4 years to 3.8 years.

For women, the effect was to accentuate the apparent increase in range in the most recent period Otherwise, the effect on the estimates of the combined classification was small.

Discussion

These results continue the pattern shown in previously published estimates of trends in life expectancy by RG social class. There was a clear social gradient in the life expectancy estimates for both males and females, which persisted through the period 1982–86 to 2002–06. The overall range between the most advantaged (higher managers or higher professionals), and the least advantaged (Routine occupations), was slightly less than the range across the occupied RG social classes for 2002–06, (around six years compared with over seven years for RG social class for males at birth). The range appeared to increase in the 1990s and, for males, to narrow slightly in the early part of the 21st Century. The range in life expectancy at birth between NS-SEC class 1 (Higher managerial and professional occupations) and class 7 (Routine occupations) fell from 6.2 years in 1997–2001 to 5.8 years in 2002–06, and from 4.1 years to 3.5 years at age 65. While this only represents a return to the inequality of the 1990s, it does appear to be a change from the earlier trend between 1982-86 and 1997–2001. It is dangerous to attach too much significance to the figures of a single period, but these results are consistent with the hypothesis that inequalities were no longer rising for males in the early 2000s, as they had done up to 1997–2001. It would be necessary to observe another period with a substantial relative improvement in life expectancy for the Routine class before there could be confidence that a turning point had been reached for inequalities in male mortality. The relative improvement in the Routine class for men was consistent with the findings of Langford and Johnson (2010), using a cross-sectional method with the Labour Force Survey forming the basis for population denominators. This suggested that mortality rates at working age for Routine class males fell by the most of any of the NS-SEC analytic classes between 2001 and 2008.

No corresponding pattern was visible for females, for whom those assigned to Routine and manual occupations seemed to continue to decline in relative life expectancy.

Lower managerial and professional occupations was the class with the greatest increase in life expectancy at birth over the study period for both males (5.3 years) and females (3.7 years). The Semi-routine class had the lowest increase for men (3.8 years) and the Lower supervisory and technical class had the lowest increase for women (1.9 years).

Those not classified by NS-SEC had a lower expectation of life than those who could be assigned a class based occupation. This group includes full-time students; the long-term unemployed; those who never worked; and those whose occupation was inadequately described or were unclassified for other reasons. Since the method used should be capable of classifying those who were unemployed for a short time or recently retired, and since spouse's class was used if the sample member could not be classified, and father or mother's class was used for children, a high proportion of those who remain unclassified could be thought to be composed of the least advantaged in society, since there is no link to the labour market apparent from available sources.

It is not surprising, therefore, that the unclassified group had low life expectancy estimates. However there is almost certainly a selection effect operating. Unclassified men had a life expectancy of 60.2 years in 1982–86. There was a negligible increase to 60.3 in 1987–91, but then the life expectancy jumped to 65.8 in 1992–96. Fox *et al.* (1985) showed that in the period from 5 to 10 years post-classification, the manual social classes had substantially higher mortality and the unoccupied lower mortality compared with the period immediately post-classification. In the current study, selection seemed to have a longer lasting effect, whereby it appeared to take at least 10 years for the effect of those with incipient ill health to wear off via their death or recovery. Changes in the relative life expectancy of the unclassified may also be partly explained by changes in the composition of the group over time. However, the trend over time in the life expectancy of the unclassified is not adequately explained and further analysis is necessary.

Differences within NS-SEC class 1

A slightly unexpected result was the higher life expectancy for higher professionals (NS-SEC class 1.2) than for higher managers (class 1.1). Cross-sectional studies using the 2001 Census and death registrations have usually found lower mortality (at working age) for class 1.1. A test of the impact of each occupation which was mainly classified to classes 1.1 and 1.2 did not suggest that any one occupation had a disproportionate effect on the relative life expectancies of the two groups. Fitzpatrick (2003) found that use of reduced NS-SEC had a substantial effect on the size and composition of class 1.1. As a result, size of establishment was included as a variable where available, as a sensitivity test for the current study to approximate full NS-SEC and substituted for the reduced NS-SEC used to produce the life expectancy estimates. However the greater life expectancy of higher professionals relative to managers persisted irrespective of the inclusion of establishment size and industry data.

The confidence intervals around the estimates for Classes 1.1 and 1.2 were relatively wide at (or greater than) a year, and this can produce volatility in the ranking of the estimates. The persistence of the phenomenon makes it more likely that it is an artefact of the classification system used in 1991 and hence 1981 rather than a real reversal of the survival probabilities of managers and professionals between 1981 and the 21st Century. It should also be remembered that with the Registrar General's social class schema, class I was 'Professionals' and class II was 'managerial', (and subsequent to 1991 'managerial and technical' (OPCS, 1991)), and historically, class I tended to have higher life expectancy than class II.

Assignment of class

The combined approach to classification was based on the concept of 'dominance' in the labour market, as proposed by Erikson (1984). The main effect of using the 'combined' measure of NS-SEC was to widen the gap slightly between the most and least advantaged both for men and women. This increase in gradient was observed in the analysis of mortality rates of women of working age using a 'combined' measure in relation to using women's own NS-SEC (Langford and Johnson, 2009). All measures which attempt to include members of the household other than the sample member tend to have the effect of selecting from the more disadvantaged classes, those who are at the most socio-economic disadvantage, and often those who live alone. This tends to increase the average mortality rates of the least advantaged group. Nevertheless, estimates for most classes were not significantly different using the combined method for either males or females.

This contrasts with the cross-sectional analysis of female mortality at working ages for 2001–03 (Langford and Johnson, 2009), where applying such a combined approach tended to steepen the gradient substantially for all causes of death. This is not surprising since, in the latter case, the method allowed women to be classified by occupation at death where otherwise they would not have been. In the current study, the combined method did not bring people into analytic NS-SEC categories who would have otherwise remained unclassified, but simply reordered the hierarchy of rules by which a class was assigned.

Other methods of assignment to an NS-SEC class were considered. It has been suggested that classifying someone by their occupation-based class at, for example, age 22 might not adequately express a person's access to resources. In addition to a natural trajectory that occurs in some careers, there is a degree of social mobility which is not accounted for when classifying people at entry to the study. Donkin *et al.* (2002) attempted to classify sample members at later censuses. They found that for those classified in 1991 (the most recent census at the time) a high proportion could not be assigned a class since the census coded occupational information only for those under 75 years old. This, when combined with the clear evidence of health selection – 'life expectancy immediately following classification appears to be enhanced for those in social class V' (the least advantaged), tends to militate against constantly updating classifications in longitudinal studies of this type. The Black report (1980, p 358) suggested that …childhood illness 'cast long shadows forward'. Power *et al.* (2005) indicated the link between socio-economic position in childhood and early life and the risk of mortality. Blane *et al.* (1999) observed that the upwardly mobile tend to have higher mortality and the downward mobile tend to have lower mortality than the average for their destination classes. White *et al.* (2005) found that social class in 1971 continued to have a strong influence on mortality risk in 1995–2001, after controlling for interim social mobility and unemployment, level of neighbourhood deprivation, and other factors. However, these authors acknowledge that it is an accumulation of disadvantage through the lifecourse which perpetuates these inequalities and that social mobility plays some role in health outcomes.

One compromise might be to update the classification for all those present at a census and capable of being assigned an occupation based socio-economic class, while retaining the existing class for those who are unclassified at the latest census. This would not completely eradicate any selection bias in that someone might have changed to a less demanding occupation owing to poor

health, but it would not exacerbate the main problem - that arising from the effect of those selected out of the workforce altogether for health reasons.

Use of occupation-based measures

All methods of assigning socio-economic position based on occupation are subject to the weakness of occupation in describing access to material and social resources. NS-SEC has provided a conceptual basis for an occupation-based system whereby an explanation can be made of differences in mortality and survival, based on job stress, type of employment contract and other job-related factors, but is not designed to evaluate the role of social capital and other non-occupation based factors, especially for women.

There is the additional problem that occupational structures are always changing. The current study required a construct of NS-SEC for 1981 occupations for which it was not designed. The empirical validity of this has been discussed in this article. While there is also a conceptual problem, it must be remembered that social class – while giving the appearance of continuity – had to change over time, owing to the existence of new occupations, the deskilling of others and various other structural changes. It was found that approximately 14 per cent of the 1971 Census cohort of men between ages 45 and 64 would have been assigned a different social class by the 1981 Census without any change of occupation (Goldblatt and Whitehead, 2000). Thus, any occupation-based measure is mutable in some way.

Educational attainment might be a better all round measure of 'social capital', and studies in Europe in particular have made use of these measures (Mackenbach *et al.,* 2008, Corsini, 2010). However, these too have shortcomings, with types of qualification and the prevalence of qualifications changing over time. There is also a practical problem in England and Wales, with very limited educational attainment data being available from the 1981 and 1991 Censuses.

Future developments

The occupational classification system has recently been revised in time for the 2011 Census. It is not feasible to set out the impact of these changes here, but the main effects will be to reduce the number of occupations which qualify as 'managerial', and to increase the number of lower professionals. It is reasonable to assume that some further degree of discontinuity will result. However, this was always the case with Registrar General's social class and as NS-SEC becomes more recognised and understood, comparisons over time will become less problematic.

Limitations of the analysis

All occupation-based classifications change over time with changes in technology and economic structures. NS-SEC is no exception to this. Donkin et al. (2002) found only 84 per cent agreement at the analytic class level used in this study between NS-SEC90 and NS-SEC2001, when applied to dual coded 2001 first quarter deaths. Of the 16 per cent discrepancy, approximately 9 per cent was a result of occupational class changes and 7 per cent to new employment status coding. The latter was more likely to record the deceased as a supervisor than earlier systems. This had a particular impact on Classes 2 and 5 (lower managerial and professional and lower supervisory and technical), where the supervisor classification often raises the subject from the Intermediate or

Semi-routine classes respectively. While the effect of such changes on a longitudinal study such as the current one are less than the numerator-denominator problems occurring for cross-sectional studies, the changes in classification rules at each census detract to some extent from the consistency of the results over time.

Any errors arising from the non-unique mapping between 1981 and 1991 occupation codes are not random. These are small however, as has been shown.

There was substantial social mobility over time, as denoted by sample members' own NS-SEC as measured in 1981 and 2001, for those who were at both censuses. While there is much evidence referenced in this paper, to suggest that early years have the greatest effect on health outcomes, subsequent employment and other experiences, including social mobility play a role in the accumulation of relative advantage and disadvantage (Marmot Review, 2010).

Immigrants and people who move frequently in and out of the country are under-represented in the analysis. Immigrants could only be assigned an NS-SEC class if they were present at a census. Therefore, many people, in particular those who entered the country since 2001, could not be assigned an occupation-based class.

The selection effect (referred to in the Discussion) may have depressed the range across the analytic classes in the first and possibly the second period analysed.

Conclusions

The analysis suggests that an approximation to NS-SEC for the 1981 Census can be constructed to produce a valid series of life expectancy by socio-economic class over time.

A clear social gradient persists over time, with remarkable consistency. The only minor exception is the relative ranking of Higher managers and Higher professionals for whom the ranking changed in one period, although Higher professionals were estimated to have the highest life expectancy in most periods. For men, the range from most to least advantaged class was approximately six years at birth and for women four years, both slightly less than the range when using the former occupation based measure of Registrar General's social class. For men, inequality appeared to increase from the mid-1980s and then to decrease slightly in the period 2002–06. However, it is too soon to say whether this represents a turning point for men. It is worth noting however, that the Routine class, the most disadvantaged of the classes whose members could be assigned by a current or former occupation, showed the second greatest improvement in life expectancy of all the classes in the most recent period.

For women there was no sign of a decline in inequality, either at birth or at age 65. Women classified as lower professional or as self-employed or own account workers had the greatest increase in life expectancy since the mid-1980s.

Using the summary three-class NS-SEC the managerial and professional class had the highest life expectancy, and had experienced the greatest growth in life expectancy since the start of the study period. The reverse was the case for the Routine and manual class. The intermediate group tended to have life expectancy estimates closer to those for managerial and professional occupations than to those for routine and manual occupations.

Comparison with the social class measure of life expectancy suggested that the range from highest to lowest exhibited less volatility from one period to the next using NS-SEC. Results obtained using the three-class condensed NS-SEC were broadly similar in range and pattern to those obtained using the non-manual and manual groupings for social class.

The degree of social mobility between 1981 and 2001 suggests that, while there were good reasons to adhere to the conventional early assignment of class as described in this article, further investigation should be made into a conditional revision of class of a sample member at the beginning of each decade, but structured to avoid the worst effects of health selection.

Owing to the difficulties involved in classifying people by occupation – especially for women, some of whom may have a weaker attachment to the labour market – other methods of classification are being sought. This study attempted a 'combined' measure for husbands and wives which attributed the most advantageous class for a couple, but this did not make a substantive difference to the results. It also does not reflect the range of modern family structures. Work on household-based measures and those which better reflect a person's more recent occupational status is continuing.

An alternative approach may be to investigate educational attainment rather than occupation as a proxy for social capital, but this too has associated problems.

Subject to consultation, the series – based on social class – which is being published simultaneously with this article will be discontinued and the NS-SEC series updated periodically.

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Appendix

Table A1a Life expectancy by NS-SEC class, males at birth, using a 'combined' classification

England and Wales

Years

	1982–86		1987–91		1992–96		1997–2001			2002–06	
	LE	95% CI +/-	LE	95% CI +/-	LE	95% CI +/-	LE	95% CI +/-		LE	95% CI +/-
	At birth										
Analytic classes											
1. Higher managerial & professional	75.7	0.7	76.6	0.7	77.6	0.6	78.7	0.6		80.4	0.6
1.1 Large employers & higher managers	75.1	1.0	75.5	1.0	76.9	0.9	78.7	0.9		79.9	0.9
1.2 Higher professional	76.5	1.1	77.8	0.9	78.2	0.9	78.6	0.9		80.7	0.8
2 Lower managerial & professional	74.4	0.6	75.2	0.6	76.3	0.5	77.8	0.5		79.2	0.5
3 Intermediate	73.7	0.6	74.8	0.7	75.5	0.6	76.8	0.6		77.9	0.7
4 Small employers & own a/c workers	73.2	0.8	74.2	0.8	75.3	0.8	76.4	0.7		77.7	0.8
5 Lower supervisory & technical	71.9	0.7	72.9	0.7	73.2	0.7	74.9	0.6		76.4	0.7
6 Semi-routine	71.4	0.6	72.0	0.6	72.1	0.6	73.8	0.6		74.9	0.6
7 Routine	69.9	0.6	70.4	0.6	71.1	0.6	71.9	0.7		74.4	0.6
Range highest- lowest	5.8		6.2		6.5		6.8			6.0	
Condensed NS-SEC											
Managerial & professional	74.9	0.5	75.8	0.4	76.8	0.4	78.1	0.4		79.7	0.4
Intermediate	73.5	0.5	74.5	0.5	75.4	0.5	76.7	0.5		77.7	0.5
Routine & manual	71.0	0.4	71.7	0.4	72.1	0.4	73.4	0.4		75.2	0.4
Range highest- lowest	3.9		4.1		4.7		4.6			4.5	
Unclassified	60.2	1.4	60.3	1.2	65.8	1.3	67.2	1.2		71.5	1.1
All Men	71.7	0.2	72.6	0.2	73.8	0.2	75.2	0.2		77.0	0.2

Source: ONS Longitudinal Study

Table A1b Life expectancy by NS-SEC class, males at age 65, using a 'combined' classification

England and Wales — Years

	1982–86		1987–91		1992–96		1997–2001		2002–06	
	LE	95% CI	LE	95% CI	LE	95% CI	LE	95% CI	LE	95% CI
+/-				+/-		+/-		+/-		+/-
	At age 65									
Analytic classes										
1. Higher managerial & professional	15.2	*0.6*	15.9	*0.5*	16.6	*0.5*	18.1	*0.5*	18.8	*0.4*
1.1 Large employers & higher managers	14.7	*0.8*	15.1	*0.7*	16.2	*0.7*	17.9	*0.6*	18.6	*0.6*
1.2 Higher professional	16.1	*0.8*	16.7	*0.7*	17.1	*0.7*	18.2	*0.6*	19.0	*0.6*
2 Lower managerial & professional	14.9	*0.4*	15.4	*0.4*	15.9	*0.3*	17.0	*0.3*	17.9	*0.3*
3 Intermediate	13.9	*0.4*	15.0	*0.5*	15.5	*0.4*	16.2	*0.4*	17.4	*0.4*
4 Small employers & own a/c workers	14.0	*0.5*	14.6	*0.5*	15.4	*0.5*	15.9	*0.5*	17.3	*0.5*
5 Lower supervisory & technical	13.3	*0.4*	13.3	*0.4*	14.3	*0.4*	15.2	*0.4*	16.2	*0.4*
6 Semi-routine	12.8	*0.3*	13.3	*0.3*	13.7	*0.3*	14.5	*0.3*	15.6	*0.4*
7 Routine	12.8	*0.3*	12.9	*0.3*	13.2	*0.3*	13.7	*0.3*	15.0	*0.4*
Range highest- lowest	2.4		3.0		3.4		4.4		3.8	
Condensed NS-SEC										
Managerial & professional	15.1	*0.3*	15.5	*0.3*	16.2	*0.3*	17.4	*0.3*	18.3	*0.3*
Intermediate	13.9	*0.3*	14.8	*0.3*	15.5	*0.3*	16.1	*0.3*	17.3	*0.3*
Routine & manual	12.9	*0.2*	13.2	*0.2*	13.7	*0.2*	14.4	*0.2*	15.6	*0.2*
Range highest- lowest	2.2		2.3		2.5		3.0		2.7	
Unclassified	11.1	*0.3*	10.2	*0.4*	11.2	*0.6*	12.0	*0.7*	14.2	*0.7*
All Men	13.1	*0.1*	13.7	*0.1*	14.5	*0.1*	15.5	*0.1*	16.7	*0.1*

Source: ONS Longitudinal Study

Table A2a Life expectancy by NS–SEC class, females at birth, using a 'combined' classification

England and Wales

Years

	1982–86		1987–91		1992–96		1997–2001		2002–06	
	LE	95% CI +/-	LE	95% CI +/-	LE	95% CI +/-	LE	95% CI +/-	LE	95% CI +/-
	At birth									
Analytic classes										
1. Higher managerial & professional	81.2	*1.0*	82.4	*0.8*	83.0	*0.8*	82.8	*0.6*	84.3	*0.6*
1.1 Large employers & higher managers	80.5	*1.6*	83.0	*1.3*	83.2	*1.1*	82.4	*1.0*	83.7	*0.9*
1.2 Higher professional	82.0	*1.4*	82.2	*1.1*	82.7	*1.1*	83.1	*0.9*	84.9	*0.8*
2 Lower managerial & professional	79.9	*0.7*	81.1	*0.6*	81.2	*0.5*	82.1	*0.5*	83.3	*0.4*
3 Intermediate	79.7	*0.7*	80.8	*0.7*	81.1	*0.6*	81.1	*0.6*	82.0	*0.6*
4 Small employers & own a/c workers	79.3	*0.9*	80.1	*0.9*	80.7	*0.8*	80.9	*0.7*	82.2	*0.8*
5 Lower supervisory & technical	78.6	*0.9*	78.4	*0.7*	79.7	*0.7*	79.7	*0.6*	80.5	*0.7*
6 Semi-routine	77.7	*0.7*	77.7	*0.6*	78.6	*0.6*	79.0	*0.6*	80.0	*0.6*
7 Routine	76.4	*0.7*	76.9	*0.7*	77.4	*0.6*	77.9	*0.7*	79.0	*0.6*
Range highest- lowest	4.8		5.5		5.6		4.9		5.3	
Condensed NS-SEC										
Managerial & professional	80.3	*0.5*	81.5	*0.5*	81.7	*0.4*	82.4	*0.4*	83.6	*0.4*
Intermediate	79.6	*0.6*	80.5	*0.5*	80.9	*0.5*	81.1	*0.5*	82.1	*0.4*
Routine & manual	77.4	*0.4*	77.6	*0.4*	78.5	*0.4*	78.8	*0.4*	79.8	*0.4*
Range highest- lowest	2.9		3.9		3.2		3.5		3.9	
Unclassified	71.5	*1.1*	73.1	*1.0*	74.2	*1.2*	75.8	*0.9*	76.9	*0.9*
All Women	77.4	*0.2*	78.3	*0.2*	79.2	*0.2*	79.9	*0.2*	81.1	*0.2*

Source: ONS Longitudinal Study

Table A2b Life expectancy by NS–SEC class, females at age 65, using a 'combined' classification

England and Wales — Years

	1982–86		1987–91		1992–96		1997–2001		2002–06	
	LE	95% CI +/-	LE	95% CI +/-	LE	95% CI +/-	LE	95% CI +/-	LE	95% CI +/-
	At age 65									
Analytic classes										
1. Higher managerial & professional	19.6	*1.0*	20.3	*0.7*	21.1	*0.7*	20.9	*0.5*	21.9	*0.4*
1.1 Large employers & higher managers	19.5	*1.5*	20.8	*1.3*	21.2	*0.9*	20.7	*0.7*	21.6	*0.6*
1.2 Higher professional	19.7	*1.3*	20.1	*0.9*	20.9	*0.9*	21.0	*0.7*	22.2	*0.6*
2 Lower managerial & professional	18.9	*0.6*	19.6	*0.5*	19.3	*0.4*	20.3	*0.4*	21.0	*0.3*
3 Intermediate	18.3	*0.6*	19.3	*0.5*	19.4	*0.5*	19.7	*0.4*	20.2	*0.4*
4 Small employers & own a/c workers	18.6	*0.8*	18.8	*0.7*	19.5	*0.6*	19.1	*0.5*	20.3	*0.5*
5 Lower supervisory & technical	18.5	*0.6*	17.7	*0.5*	18.3	*0.5*	18.4	*0.4*	19.2	*0.4*
6 Semi-routine	17.3	*0.5*	17.2	*0.4*	18.1	*0.4*	18.0	*0.4*	18.8	*0.4*
7 Routine	16.6	*0.4*	17.3	*0.4*	17.4	*0.4*	17.2	*0.4*	17.9	*0.4*
Range highest- lowest	3.0		3.0		3.7		3.7	4.0		
Condensed NS-SEC										
Managerial & professional	19.0	*0.5*	19.7	*0.4*	19.8	*0.3*	20.5	*0.3*	21.3	*0.3*
Intermediate	18.4	*0.5*	19.1	*0.4*	19.4	*0.4*	19.5	*0.3*	20.2	*0.3*
Routine & manual	17.3	*0.3*	17.4	*0.2*	17.9	*0.2*	17.9	*0.2*	18.6	*0.2*
Range highest- lowest	1.8		2.4		1.9		2.6	2.8		
Unclassified	16.2	*0.2*	16.2	*0.3*	16.3	*0.3*	16.6	*0.4*	17.4	*0.5*
All Women	17.0	*0.1*	17.5	*0.1*	18.0	*0.1*	18.5	*0.1*	19.5	*0.1*

Source: ONS Longitudinal Study

Linking maternity data for England, 2005–06: methods and data quality

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Abstract

Introduction

Maternity Hospital Episode Statistics (HES) data were linked to birth registration and NHS Numbers for Babies (NN4B) data to bring together some key demographic and clinical data items not otherwise available at a national level. This project added to earlier work involving linkage of birth registration records to NN4B records.

Methods

Birth registration and NN4B records were linked to Maternity HES delivery records and also Maternity HES baby records using the NHS Number or other indirect identifiers if NHS Number was missing.

Data quality and completeness of Maternity HES were assessed in relation to birth registration data wherever possible. For information not collected at registration, NN4B data were used to validate quality of Maternity HES.

Results

Overall, 91 per cent of Maternity HES delivery records could be linked to the birth registration/NHS Numbers for Babies records and 84 per cent of Maternity HES baby records were linked.

In 2005 only 3 per cent of Maternity HES records had mother's NHS number missing, compared with 30 per cent in the NN4B dataset. This did not reflect the extent to which Maternity HES data items were missing or discordant.

Over a quarter of all linked Maternity HES records for singleton babies had one or more of the following data items missing: birthweight, gestational age, birth status, sex, and date of birth of the baby. On the other hand, for data items where information was stated such as birthweight, birth status, and sex for singleton babies, there was good agreement between Maternity HES and linked birth registration and NN4B data.

Although NN4B records the ethnic category of the baby as defined by the mother, and Maternity HES records mother's ethnic category, 87 per cent of the linked records had the same ethnic group.

Conclusion

Even though a good linkage rate was obtained, the method used will be simplified before data for 2007 are linked. To gain the maximum benefit from this linkage in future years, improvements are urgently needed in the quality and completeness of the data contained in Maternity HES.

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Introduction

The data recorded at birth registration are mainly socio-demographic such as names, address of residence, place of birth, occupation of the parents and date of birth (shown in Office for National Statistics publication series DH3). As a result some important items needed for demographic and clinical purposes are not available at a national level. The opportunity to obtain gestational age and ethnicity nationally was provided by the introduction of the NHS Numbers for Babies (NN4B) Service in 2002. This service collects a small dataset which contains key items which are not recorded at birth registration. Information on gestational age at birth is of key importance. Babies born preterm, before 37 completed weeks of gestation, are at particular risk of morbidity and mortality in early years of life (Brocklehurst P, 1999; ISD Scotland report 2004; Confidential Enquiry into Maternal and Child Health, 2004)

Clinical information on maternity care at delivery could only be obtained from the Maternity Hospital Episode Statistics (HES) dataset for births that occurred in England and from the Community Child Health database (CHD) and Patient Episode Database for Wales (PEDW) for births that occurred in Wales.

Therefore a collaborative project between City University London, Office for National Statistics (ONS) and the Welsh Assembly Government was set up in 2004 to link these datasets for all births that occurred in England and Wales from 2005 to 2007. Stage 1 of the project involved linkage of birth registration data with NN4B dataset and assessment of data quality and completeness of the NN4B data. This is reported elsewhere (Hilder *et al.*, 2007 and Moser K *et al.*, 2008).

Stage 2 of the project, involving linkage of the dataset created in stage 1 to Maternity HES and the corresponding Welsh records for 2005 and 2006, and then the assessment of data quality and completeness by comparison with birth registration or NN4B, where possible. At the time, 2007 birth registration – NN4B linked data were not available. Therefore these data will be linked to Maternity HES and corresponding Welsh records at a later date using the experience gained in linking the first two years' data. This article describes linkage to Maternity HES records and reports on its data quality and completeness. The Welsh linkage for the first two years will be reported later.

Several data items are common to all three sources (Maternity HES, birth registration and NHS Numbers for Babies) as shown in Box 1. In addition, some data items are unique to each data source and linkage will enable new analyses across these data sources. For example, it will be possible to analyse caesarean section rates by father's socio-economic classification, compare time of birth with birth outcomes, and report on time and method of delivery by day of the week. Once the linkage has been completed and checked, the next stage of the project will be to undertake some of these analyses.

Box 1 Availability of selected data items from birth registration, NN4B and Maternity HES

Data items	Data sources		
	Birth registration	NN4B	Maternity HES
Baby's NHS number	+	+	+
Mother's NHS number		+	+
Birth date of baby	+	+	+
Delivery time		+	
Birthweight	+	+	+
Gestational age (stillbirth)	+	+	+
Gestational age (live birth)		+	+
Sex of baby	+	+	+
Number of babies born	+	+	+
Live or stillbirth	+	+	+
Parity (all births)			+
Baby/mother's postcode of usual residence	+	+	+
Ethnic category of baby		+	
Ethnic category of mother			+
Country of birth of mother	+		
Country of birth of father	+		
Father's socio-economic status	+		
Type of delivery place	+	+	+
Mother's date of birth	+	+	+
Marital status of mother	+		
Method of delivery			+
Complications in pregnancy			+

Methods

Source data

Birth registration

It is a legal requirement to register all live births within 42 days of birth. The definition of a live birth, the legal basis, the process and a complete list of data items collected, are described in detail elsewhere (Office for National Statistics publication series DH3). The information is obtained, usually from one or both parents, by the local registrar of births, marriages and deaths. The local child health department passes some information from the birth notification it receives from the midwives to the registrar to verify the birth. Since 1975 this has included the baby's birthweight and since 2002 the NHS number (National Health Service Act 1977).

The process for registration of stillbirths is similar to that for live births, except that registrars do not retain the NHS number for a stillbirth and the informant will also give the registrar a medical certificate of stillbirth completed by the attending midwife or doctor. This certifies the cause of death and includes an assessment of gestational age at birth and birthweight.

NHS Numbers for Babies (NN4B) service

The NHS Numbers for Babies Service was set up to issue an NHS number to all babies soon after birth: it went live in 2002. Under this system a standardised set of information about each birth is notified electronically, usually by the midwife attending the birth, to the Central Issuing System which checks for duplicates. If there is no existing record with the same details, the system returns a newly generated NHS number to the agency notifying the birth. If a number has already been issued, the system will return a message indicating that a record with matching details already exists. The notifier is required to check this record against the details of the baby they have just entered and use the existing number if a match is found. If no match is found then the notifier will proceed to obtain the NHS number using the NN4B Child Health Browser, or remotely by telephone from the NHS Number Issue Helpdesk if the browser is unavailable.

Records are held for six months on the Central Issuing System and then deleted. When the NHS number is issued, a copy of the information is sent to the local child health system where the birth occurred and a limited dataset, including the NHS number, to the NHS Central Register.

In the first part of the project, arrangements were made for ONS to receive a subset of variables from the NN4B dataset from 2005 onwards for linkage to birth registration record.

Maternity Hospital Episode Statistics (HES)

Maternity Hospital Episode Statistics contains data for all births occurring in England, including those at home and in non-NHS hospitals. There are however, some data items not recorded for births outside NHS hospitals such as admission/discharge dates or patient classification. HES includes a wide range of information on maternity such as details on how the baby was born (method of delivery), method of onset of labour, complications, gestation and ethnicity as well as information about the baby, such as date of birth, gender, birthweight and geographical information on where the baby was born.

Most records of admission to hospital will be classed as general inpatient episodes, even when heavily pregnant women are admitted to maternity wards with the clear intention of giving birth. However, as soon as the mother has given birth, the record becomes a maternity record and is updated and extended before being submitted to HES. If the pregnant woman does not give birth, for whatever reason, before the episode ends, the record remains as a general inpatient record (known as a general episode in HES).

There are two types of maternity records in HES, the delivery record and the birth record. Both types of records consist of an admitted patient care record with an additional 19 fields, in an appended baby 'tail'.

- A delivery record is a HES record for the mother containing the same data as a general record, but has a baby tail for information about the delivery
- A birth record is a HES record for the baby. Again it has the same format as a general record but it also has a baby tail containing exactly the same information recorded in the corresponding tail of the delivery record

The baby tail data coverage is not as complete as the rest of the HES data (HES website). There are a number of reasons for the incompleteness and data quality issues, such as:

- Trusts submitting a significantly higher number of delivery episodes compared to birth episodes
- Trusts failing to submit data on the number of birth episodes where they record a high number of delivery episodes
- Trusts failing to submit delivery records – the reason for this is that approximately 20 trusts have a stand-alone maternity system which is not linked to the Patient Administration System
- Trusts reporting a high number of maternity beds available, but not recording any information about deliveries or births
- Trusts reporting that they have no maternity beds available, but recording a high number of birth and delivery episodes

Over the years from 2001–02 to 2005–06, coverage of deliveries was 86.2 per cent on average. The problems with coverage are significantly compounded by data quality issues (HES website)

HES Patient ID (HESID) is an identifier used to track patients through the HES database, or for linkage to other datasets such as mortality, rather than using patient identifiers such as NHS Number. It is a pseudonymised number which uniquely identifies each patient without the necessity of viewing or using patient identifiable information such as the NHS Number. HESID is derived using a matching algorithm which looks at various combinations of the following patient identifiable fields:

- NHS Number (fieldname NEWNHSNO)
- Date of Birth (fieldname DOB)
- Sex (fieldname SEX)
- Postcode (fieldname HOMEADD)
- Provider code (fieldname PROCODET)
- Local patient ID (fieldname LOPATID)

HESIDs are stored in the HES index. This is updated monthly and older versions are not kept. Hence the most recent HES index (22 June 2010) was used to link birth registration/NHS Numbers for Babies data for 2005 and 2006.

For each episode of care with a particular consultant or midwife, a HES record is created, but each time this record is updated with new information, a new version of the record is created. As a result, several versions of the record of the same episode are created.

Record linkage

Record linkage was carried out by Northgate Solutions, which processes HES records under contract with the NHS Information Centre. For details on linkage of registration and NN4B linked data to the mother and baby records in HES, see Appendix.

The linked data for each year (2005 and 2006) consisted of previously linked registration and NN4B data linked to the mother record in HES, and a second file based on linkage of previously linked registration and NN4B data to the baby record in HES. These were provided to ONS and were accessed by researchers from City University London in the secure environment of the Virtual Microdata Laboratory (VML) facilities at ONS. Outputs of analyses undertaken in the VML were released by ONS in the form of disclosure controlled tables.

Data Quality

Review of quality of Maternity HES was based on completeness and consistency of the HES data in relation to birth registration data wherever possible. Since all babies born in England and Wales have to be registered, information collected at registration is subject to quality checks (Office for National Statistics publication series DH3). However, where information was not available from registration, NN4B data were used to validate the quality of Maternity HES. The quality of the NN4B data in comparison to birth registration data is reported elsewhere (Moser *et al.*, 2008). Completeness of the main data items in all three sources was measured by identifying missing data.

The linked data for the mothers file was split into singleton and multiple births (using multiple birth status information from registration) to ease assessment of data quality. In some instances the results are reported separately.

Results for 2005 are reported in this paper and 2006 results are available on the ONS website in a spreadsheet

Data analyses were carried out using SAS version 9 and SPSS version 16.

Results

Mother file

The Maternity HES record is a mother-based record containing the mother's details with a maternity tail and a baby tail which can accommodate up to nine babies born in one maternity. In contrast, the registration and NN4B linked data consists of one record per baby. Therefore, the linkage was based on baby to mother record.

Northgate solutions returned 582,680 records that had linked to 2005 registration and NN4B linked data. For 2006, 601,623 HES records were linked. These included multiple records for the same mother for each episode. Records with the most information were selected to ensure one-to-one linkage to registration and NN4B linked dataset. This gave a file of 566,240 records for 2005 and 584,795 records for 2006.

Due to the way the linkage was done, the same Maternity HES record was linked to multiple registration and NN4B linked records. Maternity HES records where the postcode, mother's or baby's date of birth and birthweight were all inconsistent, when compared to registration and NN4B linked dataset were deleted. A total of 264 and 364 Maternity HES links were deleted for 2005 and 2006 data respectively.

In the 2005 registration and NN4B linked data there were 617,613 babies who were either born in England or resident in England. The resident in England category was used for births that occurred at home in the registration and NN4B linked data.

Around 64 per cent of the linked registration and NN4B records were linked to Maternity HES records using mother's NHS number and partial date of birth.

A further 27 per cent of the linked registration and NN4B records were matched to Maternity HES using mother's postcode and date of birth. Registration and NN4B linked records that were not linked to HES accounted for 8 per cent of all records. Of the Maternity HES records, 3 per cent did not link to registration and NN4B linked records.

Overall, there were 50,380 singletons and 1,265 multiples in the registration and NN4B linked data that were not linked to HES records. This gave a total 565,968 Maternity HES records that were linked to the registration and NN4B linked records giving a linkage rate of 91.6 per cent. The linkage rate for 2006 was similar at 91.3 per cent.

Baby file

The baby file was much more straightforward than the mother file as it involved a one to one link between baby records in registration and NN4B linked data, and Maternity HES.

For 2005, a total of 686,087 HES baby records were linked to registration and NN4B linked data by Northgate solutions. These included 128,482 records that were general episodes. After omitting these, there were 557,605 HES baby records that had been linked to registration and NN4B linked data. There were multiple HES birth records for the same baby linked to registration and NN4B linked record. Again only the records with the most information were kept and others were deleted.

After deletion, 524,536 records remained. On further examination of the data, 4,009 records had to be deleted where the same HES record was matched to another registration and NN4B linked record. A similar process was applied for the 2006 data with 674,534 records sent by Northgate and 540,283 linked HES records were left after deletion of multiple HES baby record. A further 1,958 records were deleted due to same Maternity HES records being linked to more than one registration and NN4B linked record.

In the 2005 registration and NN4B linked data, there were 617,613 babies who were either born in England or resident in England; 515,434 registration and NN4B linked records were linked to HES baby records using NHS number, partial date of birth, and sex; and 4,597 were linked using date of birth, postcode, and sex. Over 15 per cent of registration and NN4B linked records were not linked to HES baby records. Around 1 per cent of HES baby records did not link to registration and NN4B linked data.

Overall 520,527 out of 617,613 records were linked giving a linkage rate of 84.3 per cent. For 2006 the linkage rate was 84.1 per cent.

Data Quality

For HES, missing and discordant data were assessed only in the mother record – as this included information on the baby, and also because the linkage rate was far better than the baby record. For multiple births information was recorded only on the first baby; data on other babies was either missing or the same as the first baby suggesting there were problems in the linkage process in HES. Hence singleton and multiple births were analysed separately and only results for singletons are reported here.

Missing data

The mother's NHS number is recorded only on the NN4B record and not recorded at birth registration. For singleton births, 30 per cent of registration and NN4B linked records did not have the mother's NHS number compared with three per cent in the Maternity HES records. In Maternity HES, birthweight and gestational age information was missing for 25 per cent and 48 per cent of singletons respectively. Status of baby, date of birth of baby and sex of baby was missing in over 25 per cent of the records (Table 1). Similar results were observed in 2006 (Table 2).

Table 1 Number of linked records[1] for singleton births with missing data items in common data fields, 2005

England

	NHS Numbers for Babies		Registration		Maternity HES	
	Number	Percent	Number	Percent	Number	Percent
NHS number of mother	164,458	*30.0*	NA	*NA*	16,685	*3.0*
Date of birth of mother	960	*0.2*	0	*0.0*	0	*0.0*
Ethnicity	59,865	*10.9*	NA	*NA*	77,771	*14.2*
Postcode	10,101	*1.8*	10	*<0.1*	693	*0.1*
Birthweight	2,721	*0.5*	874	*0.2*	135,144	*24.6*
Gestational age	3,829	*0.7*	NA	*NA*	264,877	*48.3*
Status	615	*0.1*	0	*0.0*	176,455	*32.2*
Date of birth of baby	615	*0.1*	0	*0.0*	139,414	*25.4*
Sex of baby[2]	1,098	*0.2*	0	*0.0*	144,115	*26.3*

1 Number of linked records 548,857
2 Includes 483 cases with indeterminate sex in NN4B and 15 cases in maternity HES

Source: HES, registration and NHS Numbers for Babies

Table 2 Number of linked records[1] for singleton births with missing data items in common data fields, 2006

England

	NHS Numbers for Babies		Registration		Maternity HES	
	Number	Percent	Number	Percent	Number	Percent
NHS number of mother	147,782	*26.1*	NA	*NA*	14,440	*2.6*
Date of birth of mother	465	*0.1*	0	*0.0*	0	*0.0*
Ethnicity	56,521	*10.0*	NA	*NA*	90,839	*16.0*
Postcode	8,209	*1.5*	14	*<0.1*	343	*0.1*
Birthweight	3,123	*0.6*	2,839	*0.5*	142,696	*25.2*
Gestational age	4,104	*0.7*	NA	*NA*	255,437	*45.1*
Status	189	*0.0*	0	*0.0*	155,754	*27.5*
Date of birth of baby	189	*0.0*	0	*0.0*	146,183	*25.8*
Sex of baby[2]	704	*0.1*	0	*0.0*	153,015	*27.0*

1 Number of linked records 566,313
2 Includes 515 cases of indeterminate sex in NN4B and 1,529 cases in Maternity HES

Source: HES, registration and NHS Numbers for Babies

Discordant data

Discordance in common individual data items

Discordance in each of the common data fields in the linked records was assessed using information from birth registration rather than NN4B. However, for data items that were not recorded at birth registration, NN4B data were used.

For singletons, using birth registration and Maternity HES data, baby's date of birth was discordant in 0.2 per cent of records in 2005 and 2006. Postcode did not agree in 7 per cent of records in 2005 and 2006.

Discordance in multiple birth status

There were 13,850 records that were identified as multiple births in birth registration and Maternity HES. Multiple birth status was discordant between the two data sources in 1,806 records in 2005 and 1,913 records in 2006 (Table 3). In 2005, 91,030 Maternity HES records had unknown multiple birth status.

Table 3 Comparison of plurality[1] between registration and maternity HES, 2005 and 2006

England

Year	Maternity HES plurality	Registration plurality		
		Singleton	Multiple	Total
2005	Singleton	459,282	178	459,460
	Multiple	1,628	13,850	15,478
	Total	460,910	14,028	474,938
2006	Singleton	461,912	267	462,179
	Multiple	1,646	14,543	16,189
	Total	463,558	14,810	478,368

1 Plurality was missing in maternity HES for 91,030 records in 2005 and 106,051 records in 2006.

Source: HES and registration

Discordance in live or stillbirth status

For the records which had a stated live or still birth status in both data sources, 0.05 per cent and 0.2 per cent did not agree in 2005 and 2006 (Table 4) respectively. Out of all the linked records for 2005, around 32 per cent of Maternity HES records did not have information on birth status. This fell to 27.5 per cent in 2006.

Table 4 **Comparison of birth status for singleton births between registration and maternity HES, 2005 and 2006**

England

Year	Maternity HES birth status	Registration birth status			
		Live birth	Still birth	Total	
		Number	Number	Number	Percent
2005	Live	370,939	99	371,038	*67.6*
	Still birth: ante-partum	56	1,021	1,077	*0.2*
	Still birth: intra-partum	9	137	146	*0.0*
	Stillbirth: indeterminate	6	135	141	*0.0*
	Not Known	175,578	877	176,455	*32.2*
	Total	546,588	2,269	548,857	
2006	Live	408,178	114	408,292	*72.1*
	Still birth: ante-partum	63	1,212	1,275	*0.2*
	Still birth: intra-partum	14	178	192	*0.0*
	Stillbirth: indeterminate	661	139	800	*0.1*
	Not Known	154,883	871	155,754	*27.5*
	Total	563,799	2,514	566,313	

Source: HES and registration

Discordance in baby's sex

The sex of the baby recorded on birth registration for singleton births was used to compare with Maternity HES. In 2005 where baby's sex was stated in both data sources, an agreement of 99 per cent was observed (Table 5). A similar percentage was noted in the 2006 data. In the 2006 Maternity HES data, sex was coded incorrectly in 301 records to codes 4, 5, 6, and 7, and there were 1,529 records where sex was coded as indeterminate, compared with 15 records with indeterminate sex in 2005.

Table 5 Comparison of sex for singleton births between registration and maternity HES, 2005 and 2006

England

			Registration			
Year			Male	Female	Total	Percentage
2005	Maternity HES[1]	Male	204,613	791	205,404	*50.8*
		Female	2,814	196,524	199,338	*49.3*
		Total	207,427	197,315	404,742	
2006	Maternity HES[2]	Male	208,162	586	208,748	*50.7*
		Female	2,978	200,043	203,021	*49.3*
		Total	211,140	200,629	411,769	

1 There were 34 records classified as not known, 78 as not specified, 15 as indeterminate, 143988 records had sex missing.
2 There were 2323 records classified as not known, 1450 as not specified, 1529 as indeterminate, 148941 records had sex missing and 301 records had sex coded incorrectly.

Source: HES and registration

Discordance in birthweight

Birthweights in birth registration data were grouped into 500g groups and compared with grouped birthweights from Maternity HES. In terms of concordance between the two data sources, 99 per cent of records with stated birthweight were in the same 500g birthweight group. This amounts to only 75 per cent of all linked records because birthweight was not stated on a large number of records. In Maternity HES, birthweight was missing in 25 per cent of the records compared with only 0.2 per cent in birth registration data (Table 6). Similar findings were also observed with the 2006 data (99 per cent concordance between the two data sources where birthweight was stated) and these can be found in Table 1 on the web.

Table 6 **Comparison of birthweight distribution for singleton births between registration and maternity HES, 2005**

England

Registration Birthweight (grams)	Maternity HES birthweight (grams)														
	<500	500–999	1000–1499	1500–1999	2000–2499	2500–2999	3000–3499	3500–3999	4000–4499	4500–4999	5000–5499	5500+	Not stated	Total	Percentage
<500	**233**	4	4	5	4	3	10	5	10	5	1	.	140	424	0.1
500–999	5	**1,533**	.	7	7	9	4	4	4	2	2	17	693	2,287	0.4
1000–1499	7	6	**2,322**	11	2	7	17	7	5	1	.	.	954	3,339	0.6
1500–1999	11	3	12	**4,638**	6	21	12	7	2	.	.	.	1,716	6,428	1.2
2000–2499	18	3	7	17	**16,259**	250	308	174	65	10	1	3	5,408	22,523	4.1
2500–2999	30	7	6	15	112	**68,622**	162	236	22	6	6	14	21,888	91,126	16.6
3000–3499	93	14	31	16	121	160	**149,372**	558	100	5	17	24	48,764	199,275	36.3
3500–3999	62	10	13	11	30	205	508	**119,583**	97	13	8	21	39,781	160,342	29.2
4000–4499	30	1	11	3	10	16	69	64	**39,334**	39	6	7	13,051	52,641	9.6
4500–4999	8	.	.	2	1	2	13	29	42	**6,387**	.	.	2,155	8,639	1.6
5000–5499	.	1	.	1	.	1	6	5	1	.	**636**	.	216	867	0.2
5500 +	1	7	1	2	2	3	1	2	.	.	.	**47**	26	92	0.0
Not stated	6	14	5	7	32	93	203	117	39	5	1	.	352	874	0.2
Total	504	1,603	2,412	4,735	16,586	69,392	150,685	120,791	39,721	6,473	678	133	135,144	548,857	
Percentage	0.1	0.3	0.4	0.9	3.0	12.6	27.5	22.0	7.2	1.2	0.1	0.0	24.6	100.0	

Source: HES and registration

Discordance in gestational age

Information about gestational age for all births was available from the NN4B and Maternity HES. In 2005 approximately 89 per cent of records with a recorded gestational age were the same in both data sources (Table 7). For Maternity HES data 48 per cent of records had gestational age information missing. Gestational age differed by one week in around 7 per cent of the records, and two weeks or more in about 4 per cent of the records. There was a large variation in gestational age between the two data sources in the 'tails' for those under 30 weeks and over 42 weeks, but only 3 per cent of births occurred in these gestational age groups. The difference ranged from 20 to 85 per cent for those under 30 weeks. At 43 weeks, gestational age differed in about half of the records and it decreased further to a third of all records at 44 weeks and over.

For 2006 there was agreement between the two sources in 90 per cent of records which contained gestational age from Maternity HES and NN4B (Table 2 on the web).

Table 7 Comparison of gestational age for all births between NN4B and maternity HES, 2005

England

NN4B	Maternity HES gestational age (weeks)																									
Gestational age (weeks)	<22	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44 +	Not stated	Total
<22	**74**	.	.	.	2	1	1	.	2	.	.	.	.	1	1	2	.	1	2	7	3	.	.	.	121	218
22	2	**44**	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1	.	.	.	.	74	123
23	7	2	**89**	7	2	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	1	.	.	.	114	223
24	6	.	5	**235**	8	.	.	.	.	.	.	.	.	3	.	1	.	2	.	2	1	.	.	.	323	586
25	12	.	.	6	**253**	9	3	.	3	.	.	.	.	.	2	.	.	.	.	2	2	1	.	.	269	562
26	9	1	1	1	6	**312**	11	1	1	.	1	.	1	1	.	4	.	1	1	.	1	.	.	.	373	726
27	11	.	.	3	.	7	**356**	10	.	.	1	.	.	.	.	.	2	.	3	3	2	2	.	.	374	774
28	10	1	.	.	1	5	9	**465**	9	.	1	.	.	2	1	1	2	11	2	2	4	1	.	.	521	1,048
29	5	.	.	.	2	.	.	11	**470**	21	1	1	4	1	.	.	3	.	5	5	.	.	.	.	626	1,155
30	12	.	.	.	.	.	1	1	15	**611**	16	6	6	1	1	.	1	3	7	14	.	.	.	.	788	1,483
31	14	.	.	1	.	.	2	.	3	18	**770**	25	.	3	3	.	.	3	6	17	3	.	.	.	910	1,778
32	1	17	.	1	.	.	.	2	.	4	20	**1,168**	21	9	1	6	2	5	1	24	3	.	.	1	1,241	2,527
33	1	.	36	.	.	.	.	1	1	1	9	33	**1,529**	54	10	8	9	8	7	16	2	.	.	1	1,824	3,550
34	.	.	45	3	2	2	.	1	1	2	6	3	57	**2,474**	85	19	19	18	14	37	3	.	.	.	2,814	5,605
35	3	.	.	58	1	.	.	.	.	2	5	2	14	72	**3,826**	125	27	17	16	63	16	2	.	1	4,119	8,369
36	4	.	1	.	102	.	1	3	1	1	2	5	6	24	132	**7,125**	227	62	33	141	20	11	1	9	7,616	15,527
37	5	.	.	.	229	1	6	2	2	.	3	7	5	7	26	269	**15,049**	611	162	312	67	28	7	13	15,697	32,508
38	7	3	.	1	2	473	2	4	3	11	6	11	24	23	28	80	751	**36,057**	1,405	881	114	50	26	36	37,091	77,089
39	6	.	2	.	.	2	881	1	3	10	7	9	9	18	32	68	169	1,610	**55,910**	2,915	406	123	74	83	59,341	121,679
40	13	.	3	1	4	1	3	983	1	5	3	9	5	21	25	70	98	331	2,444	**71,064**	2,593	368	147	180	72,955	151,327
41	7	.	.	2	2	2	1	865	1	4	9	4	7	11	14	44	63	121	307	4,411	**49,742**	1,275	192	228	52,850	110,162
42	2	1	.	.	.	1	.	.	252	.	.	2	2	5	2	6	24	54	81	548	1,290	**8,452**	62	49	11,205	22,038
43	.	.	.	.	.	.	1	1	.	12	2	.	.	.	1	2	7	22	51	102	74	42	**543**	7	582	1,449
44+	.	.	.	.	.	.	1	2	.	6	.	.	.	3	2	2	6	9	26	73	43	26	.	**278**	397	874
Not stated	.	1	.	3	3	5	5	8	8	11	10	14	15	36	53	115	239	458	679	780	616	88	1	4	1,436	4,588
Total	211	70	183	322	619	821	1,284	2,361	776	719	872	1,299	1,705	2,769	4,245	7,947	16,698	39,404	61,164	81,420	55,006	10,469	1,053	890	273,661	565,968

Source: HES and registration

Discordance in ethnicity

Baby's ethnicity from the NN4B dataset and mother's ethnicity from Maternity HES were compared (Table 8). There was agreement in 87 per cent of the records which had a stated ethnic category. Out of all the linked records, 19 per cent of records had no ethnicity recorded in Maternity HES, and in 11 per cent of records ethnic group was not stated in the NN4B dataset.

For 2006 data the ethnic category was the same in 87 per cent of the linked records. In Maternity HES 16 per cent of records had no ethnicity recorded and 10 per cent of records had ethnic group not stated in the NN4B dataset (Table 3 on the web).

Table 8 **Comparison of baby's ethnicity from NN4B with mother's ethnicity from maternity HES for all births, 2005**

England

	Mother's ethnicity																	
Babies ethniciy	**White British**	**White Irish**	**Any other White**	**White and Black Caribbean**	**White and Black African**	**White and Asian**	**Any other mixed**	**Indian**	**Pakistani**	**Bangladeshi**	**Any other Asian**	**Caribbean**	**African**	**Any other Black**	**Chinese**	**Any other**	**Not stated**	**Total**
White British	**281,674**	1,036	7,385	179	75	186	441	254	255	90	183	183	209	99	118	1,440	68,309	362,116
White Irish	683	**832**	76	2	.	1	6	.	1	.	3	3	3	.	3	16	306	1,935
Any other White	5,746	170	**14,963**	20	46	42	403	26	23	6	130	17	75	36	31	1,607	4,262	27,603
White and Black Caribbean	2,577	24	134	**558**	34	5	110	1	2	1	4	503	79	151	.	146	853	5,182
White and Black African	1,003	13	144	21	**278**	1	42	6	3	2	9	49	700	170	1	84	596	3,122
White and Asian	1,723	34	220	9	2	**274**	65	342	120	32	392	4	10	7	117	260	921	4,532
Any other mixed	2,259	32	645	175	67	81	**615**	180	87	31	249	168	134	150	204	729	1,351	7,157
Indian	290	.	36	23	3	39	36	**9,553**	855	220	872	18	37	15	2	275	2,370	14,644
Pakistani	300	1	34	.	3	44	22	439	**17,515**	224	732	7	27	38	2	202	2,716	22,306
Bangladeshi	92	1	12	2	1	3	7	120	427	**5,974**	175	4	8	6	.	68	526	7,426
Any other Asian	132	1	76	9	6	57	65	647	361	104	**2,721**	18	52	32	125	951	1,298	6,655
Caribbean	283	6	38	218	25	1	53	5	6	2	15	**4,195**	274	592	1	147	788	6,649
African	234	1	107	28	541	3	67	34	28	18	97	292	**11,585**	1,111	1	500	2,376	17,023
Any other Black	182	3	71	74	81	4	47	24	11	5	51	390	591	**2,278**	2	181	666	4,661
Chinese	62	2	16	.	1	5	24	2	.	1	68	.	2	.	**1,323**	135	380	2,021
Any other	1,198	26	1,249	80	62	77	255	163	130	35	837	92	378	163	149	**4,032**	2,233	11,159
Not stated	35,701	197	2,058	185	121	118	267	2,076	915	698	498	326	1,097	316	263	1,192	15,749	61,777
Total	334,139	2,379	27,264	1,583	1,346	941	2,525	13,872	20,739	7,443	7,036	6,269	15,261	5,164	2,342	11,965	105,700	565,968

Source: HES and registration

Discussion

Northgate Solutions designed part of the linkage algorithm based on its previous experience of linkage and this was enhanced by the authors to improve the linkage rate. Northgate also linked Maternity HES records (mother and baby records) to registration and NN4B linked data. There were however, some issues with the linked file as in some cases more than one registration and NN4B linked records were linked to the same Maternity HES record using different combinations of patient identifiable information. Also in the mother file, delivery records were provided (as requested) but in the baby file both birth and general episodes were provided when only the former were requested. Furthermore, HES data included multiple records for each episode. These had to be reviewed to identify the record with the most information that should be kept for analysis and the rest were deleted. Hence, a considerable amount of time was spent in cleaning the files. The final files consisted of one maternity record linked to a registration and NN4B linked record for the mother, and one HES baby record linked to a registration and NN4B linked record for the baby. The linkage method used by Northgate Solutions will be simplified before data for 2007 are linked, so that a maternity HES record is linked to a single linked registration and NN4B record.

Two-thirds of the registration and NN4B records were linked to the HES mother record using NHS number and partial date of birth. This was not surprising as mother's NHS number was missing in nearly a third of the registration and NN4B linked records and also a very small proportion of Maternity HES records. A further quarter of the registration and NN4B linked records were linked using date of birth or month and year or birth, and postcode. There were concerns about using postcode in the linkage algorithm, as the HES index used for linkage is derived using current postcode of residence of the mother and the postcode on registration and NN4B linked data was recorded at the time of registration. It is possible the mother could have moved since having the baby and this variable is also subject to recording and reporting errors. Despite this, an overall linkage rate of over 90 per cent was achieved for both 2005 and 2006. This could have improved further if there was a shorter delay before linkage was carried out, as HESID would be less likely to have changed, or if HESID at birth was retained as a separate field for linkage.

The linkage rate for registration and NN4B linked data to HES baby record was slightly lower than the linkage rate for the mother record. This was not surprising, as large proportion of 'baby tails' are known to be missing in Maternity HES (see HES website)

HES mother records include information on the baby, and as the linkage rate for registration and NN4B linked data to HES mother records was better than the baby records quality of information on HES was assessed using the mother records. There were however, issues with multiple births in the HES mother record. Information was often recorded for the first baby only and for the remaining multiples it was either missing or the same as the first baby. But in very few cases it was different. Multiple birth status was also unknown in a fifth of the records. Further work to assess quality of data on multiple births is necessary before it could be used for any analyses.

Discrepancy in the recording of live/still birth status for singleton babies was found in 5 in 10,000 linked records in 2005, and 2 in 1,000 records in 2006. Classification at birth registration is judged to be more reliable as a medical certificate of stillbirth is required to register a stillbirth. Also a third of the HES records did not have any information on birth status; this is a much higher proportion

than found in pilot study involving linkage of Maternity HES data for one month to birth registration (Abraham C *et al.*, 2002).

Birthweight was missing in a quarter of all linked Maternity HES records for singletons babies, compared with only 0.2 per cent at birth registration. There was however, good concordance between the two data sources where birthweight was stated, as 99 per cent of records were in the same 500g birthweight group. Missing birthweights are investigated by ONS by going back to registrars and also to child health departments. Therefore the quality of birthweight information on registration is expected to be better and more reliable than in Maternity HES.

Gestational age is not recorded at registration for live births but is available from the NN4B data. This records gestational age in weeks 'calculated from relevant menstrual data held within the maternity system' whereas Maternity HES specifies 'time from the first day of the last menstrual period (LMP)'. Where this is not available an estimate is supposed to be recorded. However, it is likely the gestational age assessed by ultrasound is now used because second trimester scans are a routine part of antenatal assessment in Britain. A study of births at 27/28 weeks of gestational age in England, Wales, and Northern Ireland between 1998 and 2000 showed that 79 per cent of the mothers had had an ultrasound before 20 weeks gestation, and 85 per cent had had menstrual history recorded (Confidential Enquiry into Stillbirths and Deaths in Infancy, 2001). Gestational age distributions have been shown to differ depending on the method used to assess gestational age. Studies have shown that if second trimester ultrasound is used rather than LMP, then the mean gestational age is one week less. However, gestational age differed by one week in only 7 per cent of the linked records. Of all the linked records, nearly half of the HES records had no information on gestational age, and where gestational age was stated it was in good agreement with NN4B in majority of the records.

The NN4B system requests information on the ethnic category of the baby, as defined by the mother using the 2001 Census categories (Moser K *et al.*, 2008). On the Maternity HES record it is the mother's ethnicity which is self-selected using the 2001 Census categories. It is however, unclear in both of these data sources, whether the mother was involved in defining the ethnic category or the health professional decided what to record rather than asking the mother. In practice it is likely to be a mixture of both, and although the ethnic category of the baby is requested in NN4B it is not possible to know whose ethnicity was actually recorded, the mother's or the baby's. A further consideration is that people's identification with an ethnic group is not always straightforward and individual responses, whether self-reported or not, may vary according to circumstances and over time. Despite these limitations, in over 80 per cent of the linked records mother's ethnicity was the same as that of the baby. In 4.2 per cent of records mother's ethnicity has been categorised as 'White British' and baby's ethnicity has been categorised as 'White other' or vice versa. This suggests that father's ethnicity may have been taken into consideration in recording the baby's ethnic category on the NN4B data and this is more likely to have been defined by the mother.

Appendix

For linkage of registration and NHS Numbers for Babies (NN4B) linked data to the mothers records (also known as delivery record) in HES, a file consisting of a small subset of data items including the mother's NHS number, date of birth and age, the baby's date of birth, their postcode and a unique ID compiled by ONS was sent to Northgate Solutions. A second file consisting of baby's NHS number, date of birth, postcode of residence and the unique id was sent to link to the baby records, known as 'baby tails'. Northgate extracted the mother and baby records from HES using the filters shown in Box A1. These records were then linked to the registration and NN4B linked records.

Box A1 The filters used by Northgate Solutions to extract HES records for mother and baby

Mother records	Baby records
Episode type = 2 or 5 (delivery episodes)	Episode type = 3 or 6 (birth episodes)
AND	AND
Main procedure/Intervention Code between R14 and R27	Well baby index = YES
OR	OR
Main diagnosis code between ICD codes O00 and O99 (O = pregnancy and childbirth and Puerperium conditions).	Neonatal level of care in (0,1,2,3,4,9)
	OR
	Main diagnosis code between ICD codes P00 and P99 (Conditions originating in perinatal period)
	OR
	Main diagnosis code between ICD codes Q00 and Q99 (Congenital malformations, deformities, chromosomal abnormalities).

For the registration and NN4B linked data, indirect identifiers were used for linkage of records where the mother's NHS number was missing. These included different combinations of mother's date of birth, postcode, and baby's date of birth. A pilot study, using registration and NN4B linked data for all babies that were born in January 2005, was carried out to test the algorithm compiled by Northgate Solutions, involving stages 1–3 as shown in Table A1. This was based on their previous experience of linking mortality registration records to HES.

Examination of the unlinked registration and NN4B linked data and maternity HES records showed that the linkage rate could be improved by using partial information, such as month and year of birth or first four characters of postcode. Therefore further stages were added to the algorithms

used for linking the mother and baby records before the annual registration and NN4B linked data files for 2005 and 2006 were sent to Northgate Solutions. The final algorithm used to link mothers records to the registration and NN4B linked data involved 9 stages, of which linked records were obtained only from stages 1, 2 and 5 (Table A1). A variable indicating stage of algorithm used for linking HES records to the registration and NN4B linked dataset was provided by Northgate Solutions.

Table A1 Number and percentage of registration/NN4B records that were linked to HES mothers records by algorithm, 2005[1] and 2006[2]

England

Stage	Variables used	Records linked			
		2005		2006	
		Number	Percentage	Number	Percentage
1	Exact NHSNO + partial mother's DOB	395,855	*64.1*	431,296	*67.4*
2	Exact mother's DOB + exact postcode	168,704	*27.3*	152,040	*23.8*
3	Exact NHSNO + exact mother's DOB	-	-	-	
4	Exact NHSNO + month and year of mother's DOB	-	-	-	
5	Exact postcode + month and year of mother's DOB	1,409	*0.2*	1,083	*0.2*
6	Exact baby's DOB + baby sex + exact POSTCODE	-	-		-
7	Exact baby's DOB + exact POSTCODE	-	-		-
8	Exact baby's DOB + first four characters of POSTCODE	-	-		-
9	Month and year of Baby's DOB + exact POSTCODE	-	-		-

1 2005 - there were 51,645 (~8.36%) registration/NN4B records that did not match.
2 2006 - there were 55,852 (~8.72%) registration/NN4B records that did not match.

Source: HES

Linkage for babies' records consisted of five stages of an algorithm which included a mix of baby's NHS number, date of birth and postcode. The records were linked using all the stages (Table A2).

Table A2 Number and percentage of registration/NN4B records that were linked to HES baby records by algorithm, 2005[1] and 2006[2]

England

Stage	Variables used	Records linked			
		2005		2006	
		Number	Percentage	Number	Percentage
1	Exact SEX + Partial DOB[3] + Exact NHSNO	515,434	*83.5*	525,897	*82.1*
2	Exact SEX + Exact DOB + Exact POSTCODE	4,597	*0.7*	10,213	*1.6*
3	Exact DOB + Exact POSTCODE	176	*<0.1*	377	*0.1*
4	Exact DOB + first 4 characters of POSTCODE	319	*0.1*	1,838	*0.3*
5	Exact POSTCODE + month and year of DOB	1	*<0.1*	-	-

1 2005 - there were 97086 (15.7%) registration/NN4B records that did not match.
2 2006 - there were 101946 (15.9%) registration/NN4B records that did not match.
3 DOB = Baby's Date of Birth.

Source: HES

In some instances, after the first appropriate stage of the algorithm was applied leading to a HES record being linked to a registration and NN4B linked record, using further stages of the algorithm, the same HES record was linked again to a different registration and NN4B linked record. These were identified using the HESID. Records that were uniquely linked using either stages 1 or 2 of the algorithm were kept for analysis and the rest were examined manually to see whether data items such as date of birth of mother, date of birth of baby and postcode were consistent on HES and registration and NN4B linked file. Linkage to HES was deleted for records where the data items were inconsistent.

In addition, the data sent by Northgate Solutions contained multiple records for each HESID. These were identified using the variable Epikey. Multiple epikeys were present for both the mother and baby records. The record with the highest epikey was kept as this contained information for most of the variables required for analysis and all others were deleted.

Northgate Solutions had used the HES index to link the Maternity HES records to registration and NN4B linked data. Registration and NN4B linked records for 2005 and 2006 were linked using the most recent HES index and this might have contributed to some discrepancies in the linkage rate.

Narrative verdicts and their impact on mortality statistics in England and Wales

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Abstract

Background

Annually, there are around 30,000 coroner's inquests held in England and Wales that conclude with a verdict. 'Short form' verdicts such as accident or misadventure; natural causes; suicide; and homicide make up the majority of all verdict conclusions. 'Narrative' verdicts can be used by a coroner or jury, instead of a short form verdict, to express their conclusions as to the cause of death following an inquest. Since 2001 narrative verdicts have been more widely used, with over 3,000 narrative verdicts returned in 2009. In some cases, it can be difficult to code the underlying cause of death from the information provided in the narrative. For some time, the Office for National Statistics (ONS) and other organisations have been concerned about the impact of narrative verdicts on the quality of the statistics on cause of death. Our research investigated the impact of narrative verdicts on trends for deaths attributed to injury and poisoning in England and Wales.

Methods

The research considered narrative verdicts received by ONS between 2001 and 2009. All available information provided by the coroner from the narrative verdict, together with the underlying cause of death, was used in the analysis. All causes of death where a narrative verdict was returned were investigated. More in-depth analysis of accidental deaths was undertaken, as classification of these deaths by intent is more difficult when the information from the coroner is imprecise. A sensitivity analysis of suicide rates (intentional self-harm and event of undetermined intent) was carried out. This involved using two different scenarios of reclassifying selected proportions of accidental hanging and poisoning deaths, where a narrative verdict was returned, as intentional self-harm. An exercise to measure the consistency of coding cause of death from narrative verdicts was also undertaken.

Results

The increasing proportion of narrative verdicts involving injury and poisoning has not significantly affected published mortality rates for suicide (intentional self-harm and injury or poisoning of undetermined intent). However, if the rise in narrative verdicts continues at the same rate, the accurate reporting of injury and poisoning deaths, including suicides, is likely to be affected. The exercise to establish the consistency of coding the cause of death by ONS cause coders showed that the current coding rules were being applied uniformly.

Conclusions

The increase in the use of narrative verdicts by coroners has not had a statistically significant impact on published suicide rates in England and Wales and so no revision to these rates is needed. A review of current coding practices and the handling of narrative verdicts will be undertaken by ONS with particular reference to deaths from intentional self-harm. A recommendation has been made to coroners to consider ways of recording narrative verdicts to allow more accurate coding of cause of death. This will ensure that mortality statistics are maintained to the highest standards.

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Introduction

Mortality statistics provide a rich source of information for population health surveillance. They are used to assess the effectiveness of health and social care services and to evaluate the success of policies to reduce mortality rates. The reliability and accuracy of mortality statistics is crucial in the assessment of their impact. It is essential that the ONS is able to classify the cause of death accurately from information received from the certifier of the death.

Deaths can be divided into two main cause groups – those that are disease related, or have other internal conditions as their underlying cause of death; and those that are the result of an injury or poisoning and are attributed to an external cause of death. This distinction applies to all deaths, including those that have been the subject of an inquest. Where a narrative verdict is returned, the potential for misclassification of the injury and poisoning is greater if there is insufficient information from the certifier. If the narrative verdict does not contain sufficient detail about who caused the initial event leading to the death, or their intention at the time of the action, then the coder has to assign the death as an accident in accordance with international coding rules. This may affect the quality of mortality statistics.

Background

Coroners are independent judicial officers appointed and paid for by the relevant local authorities. They are responsible for investigating violent, unnatural deaths or sudden deaths of unknown cause that are reported to them, including all deaths occurring in custody. Coroners are also responsible for registering the cause of death for those deaths they investigate. Unnatural deaths exclude those deaths that have disease and other internal conditions as their underlying cause.

A coroner's inquest is an inquiry to establish the facts surrounding these types of death. The verdict following the inquest is usually returned in short-form format that fits into one of a series of established categories, for example, suicide, accident or misadventure. Alternatively, a narrative verdict can be returned by the coroner or jury. Narrative verdicts record the facts surrounding the death in more detail, but do not use a standard verdict to express their conclusions as to the cause of death. In some cases, it can be difficult to code the underlying cause of death from the information provided by the coroner in the narrative verdict. The aim of the research was to assess the impact of narrative verdicts on National Statistics relating to cause of death.

Since 2001 there has been a downward trend in the number of deaths registered in England and Wales. However, there has been an increase in the number of coroner's inquests over the same period. According to Ministry of Justice statistics (Ministry of Justice, 2010), the number of inquests opened in England and Wales has increased each year since 2001. In 2009 inquests were opened on around 31,000 deaths reported to coroners, compared with about 25,800 in 2001. 'Non-specific verdicts' (which include narrative verdicts) formed less than 1 per cent of all verdicts in 2001, but accounted for more than 13 per cent of verdicts in 2009. Recent case law may be responsible for the increased number of narrative verdicts in recent years, including the House of Lords 'Middleton' judgement (Ministry of Justice, 2010). The use of narrative verdicts by individual coroners varies throughout England and Wales.

Selecting the underlying cause of death

The selection of the underlying cause of death is based on the Tenth Revision of the *International Statistical Classification of Diseases and Related Health Problems,* (ICD-10) (WHO, 1992–1994) and is derived from the condition or conditions reported by the certifier, as recorded on the medical certificate of cause of death. The underlying cause of death is defined by the World Health Organisation (WHO) as:

- the disease or injury that **initiated** the train of events directly leading to death, or
- the circumstances of the accident or violence that produced the fatal injury

In order to preserve the international comparability of statistics, and to take account of different medical and legal practices, internationally agreed rules have been devised to code the underlying cause of death from the information recorded on the death certificate and other supporting documentation.

While the majority of deaths in England and Wales have a cause of death assigned automatically by coding software, around 20 per cent (100,000) of deaths are manually coded, including all deaths which have been the subject of an inquest.

When coding injury and poisoning deaths, both the intent and the mechanism determines how the death is assigned to an ICD code. The 'manner of death' (which equates to verdict in England and Wales) is also recorded. This includes accident, homicide, suicide, or event of undetermined intent if the intent could not be determined following investigation. The mechanism includes, for example, suffocation, drowning, poisoning or transport-related. As the majority of injury and poisoning deaths are investigated by a coroner, it is the verdict following the inquest, which should provide this information. Where a narrative verdict has been returned, details about the initial intent behind the act leading to the death, together with the mechanism used, may not always be clear from the facts provided by the coroner.

Intentional self-harm

To return a verdict of suicide, the coroner must be satisfied beyond reasonable doubt that the deceased intended to kill him/herself. However, in recognition of the different international medical and legal practices, the ICD code 'intentional self-harm' (which includes suicide), requires only that the certifier states that, to the best of their knowledge and belief, the initial event which led to the death was that the individual intended to harm himself/herself. As a high proportion of people who kill themselves are reported to be suffering from a mental health problem, (Harris and Barraclough, 1997; Pirkis and Burgess, 1998) it may be difficult to establish at an inquest whether the deceased was capable of understanding the consequences of their actions. In England and Wales it has been customary to assume that most injury and poisoning deaths, where the intent could not be determined following investigation, are those where the harm was self-inflicted, but there was insufficient evidence to prove that the deceased deliberately intended to kill themselves (Brock and Griffiths, 2003). Therefore, the definition of suicide used in ONS publications is any death given an underlying cause of intentional self-harm, or injury/poisoning of undetermined intent (Box 1).

Box 1 National Statistics definition of suicide

ICD–10 code	Description
X60–X84	Intentional self-harm
Y10–Y34[1]	Injury/poisoning of undetermined intent

1 From 2007 onwards, ONS has used ICD–10 code U50.9 for deaths with adjourned inquests. In the past, these deaths were coded to Y33.9. The principal reason for the change was to exclude these deaths from the Y10–Y34 range, making the tabulation of events of undetermined intent easier.

Determining intent from narrative verdicts

In some cases, the intent and mechanism are clearly stated in the narrative verdict. However, in a proportion of injury and poisoning deaths, where a narrative verdict has been returned, ONS has no indication from the information provided by the coroner of whether the fatal injury, or toxic substance, was self-administered, or if there was deliberate intent to self-harm. The rules of coding cause of death dictate that, where no indication of intent has been given by the certifier, deaths from injury or poisoning must be coded as accidents. Consequently, the net effect of the increase in narrative verdicts may have been to inflate the number of deaths classified as accidents and decrease the number classified as intentional self-harm. This is important, as trends in these types of death are closely monitored.

Methods

The analyses in this report focus on deaths with a narrative verdict received by ONS between 2001 and 2009 in England and Wales. Narrative verdicts were identified using the death registrations database. Variables selected for the analyses included age, sex, underlying cause of death and all coroner's text received by ONS. Descriptive statistics were produced and further analysis of the narrative text carried out to identify examples of text where the intent behind the initiating act causing the death was unclear.

Sensitivity analysis

To assess the potential impact of coroners providing insufficient detail in narrative verdicts to establish the intent, simulated age-standardised mortality rates (ASMRs) were calculated for each of the years 2001 to 2009 using two different assumptions. Firstly, mortality rates were calculated assuming all deaths, where a narrative verdict had caused the death to be coded as an accidental poisoning or hanging, were intentional self-harm (scenario 1). Secondly, rates were calculated assuming half of these deaths were intentional self-harm (scenario 2). Hangings and poisonings were used as these are the two most common methods for intentional self-harm in England and Wales. The ASMRs were calculated for all ages and were directly standardised using the European Standard Population.

Consistency of coding cause of death

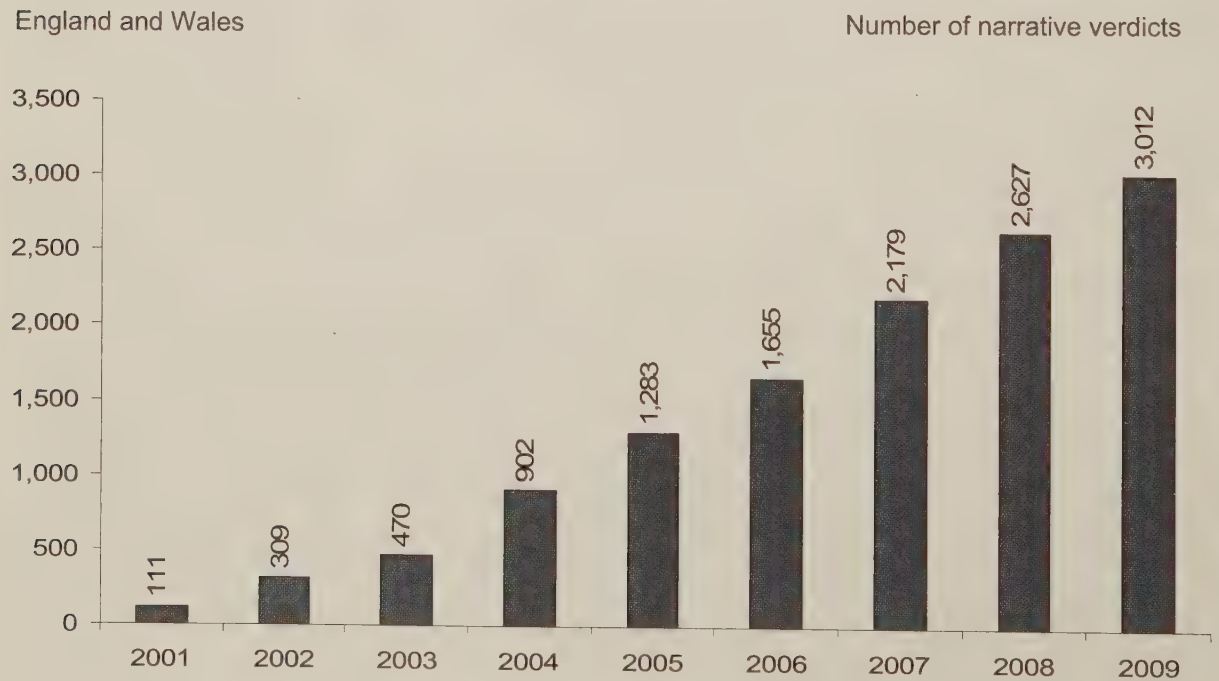
In order to assess the consistency of cause of death coding within ONS, an exercise was set up to evaluate any variation in the coding of narrative verdicts over time. All narrative verdicts, with the exception of neonatal deaths and transport accidents (V01–V99), were selected for the years 2004 to 2008. Neonatal deaths were excluded because they do not have an underlying cause of death. The reliability of coding transport accidents was assumed to be sufficiently high to allow the removal of these records. A total of 7,914 records were coded by eight experienced ONS cause coders who were able to see the coroner's text and cause of death text for each record, but not the original underlying cause of death code. Each case was coded and the results entered on a test database. A comparison could then be made between the original cause and the new cause, and any differences identified. A manner of death code, or verdict outcome, was also recorded by the coders in the exercise.

The coding frame used by ONS to classify the manner of death was also reviewed to ensure that it included common phrases used by coroners in their narrative verdicts.

Results

Since 2001 there has been a downward trend in the number of deaths registered in England and Wales, with the total number of registrations falling by around 8 per cent between 2001 and 2009. Despite this trend, the number of coroner's inquests has been rising since 2001, together with the proportion of these with a narrative verdict.

Figure 1 **Number of narrative verdicts: by year of death registration, 2001–09**



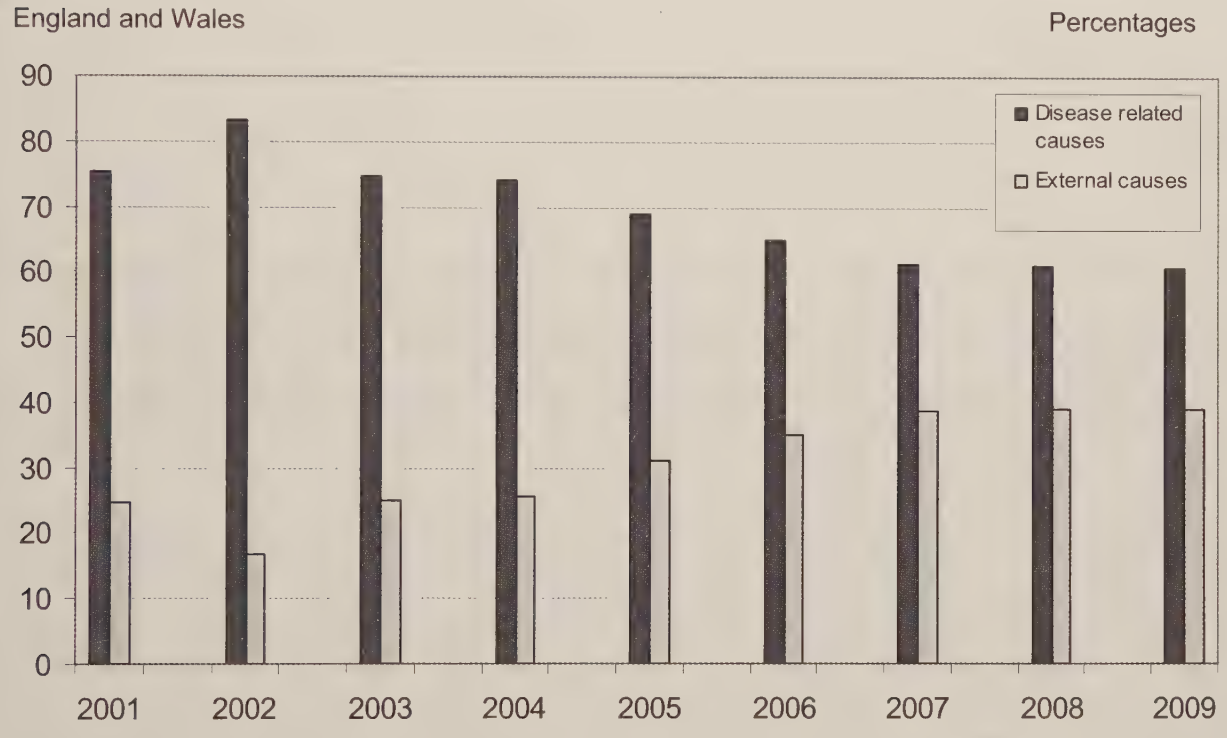
Source: ONS

Between 2001 and 2009 there has been a 27-fold increase in narrative verdicts coded by ONS (Figure 1).

Narrative verdicts and cause of death

The increase in narrative verdicts has been associated with an increase in the proportion of these which are deaths from external causes, especially from 2005 onwards (Figure 2).

Figure 2 **Narrative verdicts by cause of death, 2001–09**



Source: ONS

Currently around 40 per cent of deaths with a narrative verdict are classified as having an external cause of death, compared with around 25 per cent in 2001. While the proportion of all deaths which are from external causes has remained stable over the period (around 3.5 per cent), there has been a slight increase in the proportion of these deaths classified as being accidental, from 2.1 per cent in 2001 to 2.4 per cent in 2009 (ONS, 2010).

Table 1 Narrative verdicts classified as accidental deaths, 2001–09

England and Wales — Number of verdicts, percentages

	2001	2002	2003	2004	2005	2006	2007	2008	2009
All narrative verdicts	111	309	470	902	1,283	1,655	2,179	2,627	3,012
Narrative verdicts coded to accident	21	25	58	155	295	457	728	908	1,002
Percentage of narrative verdicts where the cause of death was accident	*18.9*	*8.1*	*12.3*	*17.2*	*23*	*27.6*	*33.4*	*34.6*	*33.3*

Source: ONS

Table 1 shows the increase in the proportion of narrative verdicts classified as having an accidental cause of death between 2001 and 2009. The proportion of narrative verdicts classified as being accidental deaths has risen from around a fifth (19 per cent) in 2001 to a third (33 per cent) in 2009. As mentioned above, unless there is sufficient information from the coroner to state otherwise, the coder has to classify the death as an accident in accordance with international coding rules.

Types of accident

Table 2 gives the aggregate numbers of accidental deaths for narrative verdicts by selected mechanism. Between 2001 and 2009 the two most common mechanisms for accidental deaths were transport accidents and falls, accounting for 50 per cent of the total. As these deaths are more likely to be accidental, the analyses concentrated on deaths from poisoning or suffocation (predominately hangings), these being the next two most common mechanisms. For these types of death, the intent behind the initial act leading to the death can be more difficult to determine from the information contained in a narrative verdict. It should also be noted that the majority of accidental deaths with an unspecified mechanism are likely to have been falls (Griffiths and Rooney, 2003).

In England and Wales the most common methods of suicide are hangings (including strangulation and suffocation) and poisonings. In 2009 these two mechanisms accounted for 60 per cent and 19 per cent of intentional self-harm deaths respectively (ONS, 2010). Where a narrative verdict had been returned, it is possible that a proportion of accidental deaths involving these two mechanisms could be classified as intentional self-harm, but there is insufficient detail in the narrative to confirm the intent.

Table 2 **Narrative verdicts by selected mechanisms for all accidental deaths, 2001–09**

England and Wales

Mechanism	Number	Percentages
Falls	1,085	*29.7*
Transport accidents	745	*20.4*
Poisoning	679	*18.6*
Suffocation	408	*11.2*
Drowning	109	*3.0*
Unspecified factor	330	*9.0*
Other accidents	293	*8.0*
All	**3,649**	***100.0***

Source: ONS

Analysis of coroner's text

Narrative verdicts vary in both length and detail ranging from a single line of text to detailed factual records, especially if the death occurred in custody. Some narrative verdicts contain all the information required to code accurately the underlying cause of death. In other cases, crucial detail is not provided.

The following examples illustrate deaths, where a narrative verdict has been returned, which are difficult to code. An example of the simplest narrative verdict record is where the cause of death is given as 'hanging', or 'suspension by ligature around neck' and the accompanying coroner's narrative verdicts reads 'On date at x, the deceased was found with a ligature around her neck.' The text does not provide any information as to whether there was a third party involved, nor if there was an intent to self-harm. With this vital detail missing, the cause of death code has to be accidental hanging as laid out in the ICD rules.

An example of a narrative verdict following a death in custody is 'Mr x, after being found hanging in his cell at x youth offenders institution on date, died on date at x infirmary. It was a serious omission by x young offenders institute not to have informed x's parents on each occasion that x had self-harmed. The jury's verdict is that x died from hanging which caused his death.' With this example, there is some evidence that there was intent to self-harm because previous instances of this are mentioned in the narrative. However, as there is no mention of the intent surrounding the initiating act that caused the death, the death has to be classified as accidental.

There may also be references to use of drugs or alcohol, together with mentions of 'mental illness' which may cast doubt about whether the deceased was in control of their own actions. Again, without a clear mention of intent behind the hanging, these records must classified as accidental deaths. It should be noted that a proportion of hangings will be accidental, for example, a person

playing a game, or an auto-erotic act that went too far. However, further analysis of over 400 records in this study involving hangings revealed that these events were rare.

For poisoning deaths, the information provided in the narrative verdict about the events surrounding the death can be less clear, especially where there is an overdose of drugs. A verdict of suicide will only be returned by the coroner if this is proved beyond reasonable doubt. For drug poisoning, there may not be any clear indication of intent to self-harm as the drugs may have been taken for recreational purposes. Similarly, there may not be sufficient detail in the narrative verdict regarding the involvement of any third party.

An example of a narrative verdict using the word 'overdose' is 'Died as a result of taking an overdose of heroin with alcohol'. The cause of death text on the coroner's form was 'Overdose of heroin with alcohol'. Again, there is no indication within the narrative verdict to verify if the overdose was self-administered and no indication of intent to self-harm. A similar example is 'Died following self-administration of an excessive amount of non-prescribed medication and alcohol'. Although this narrative text clearly states that the drug was self-administered there is doubt regarding the intent surrounding the taking of the non-prescribed medication with the alcohol. The intent may have been to 'get high' or to relieve pain, depending on the drug involved. A self-administered overdose of heroin, codeine or co-proxamol, may tacitly point to accidental death, but this could still have been a deliberate act. As nothing can be assumed, the only option is to classify such deaths as accidental according to the ICD rules. Use of the word 'overdose' can be subjective when the quantities taken following the investigation are not mentioned in the narrative verdict.

Poisonings by other noxious substances were also reviewed. Accidental deaths from carbon monoxide poisoning were generally well documented with the narrative detailing a faulty gas boiler or blocked flue. However, where a person was found dead in a car from carbon monoxide poisoning, additional information to classify the cause of death could be absent with no indication of whether the deceased intended to kill her/himself.

Sensitivity analysis – Hangings and poisonings

The research investigated the impact of potential misclassification on trends in deaths attributed to intentional self-harm and events of undetermined intent. This is the National Statistics definition used by ONS to monitor trends in suicide deaths in England and Wales.

Figure 3 (scenario 1) shows the results of combining all accidental hangings and poisonings from narrative verdict records with existing suicide death rates (intentional self-harm deaths and event undetermined intent). This was carried out for hangings and poisonings both separately and jointly. Between 2001 and 2004, the inclusion of accidental hangings and poisonings had no effect on the suicide rate for England and Wales. In 2005 adding hangings increased the mortality rate from 84 deaths per million population, to 85 deaths per million population. A similar increase in the rate was seen in 2007. In 2008 the effect was greater, increasing the rate from 81 deaths per million population, to 83 deaths per million population, and likewise in 2009 the effect was to increase the rate from 82 deaths per million population to 84 deaths per million population.

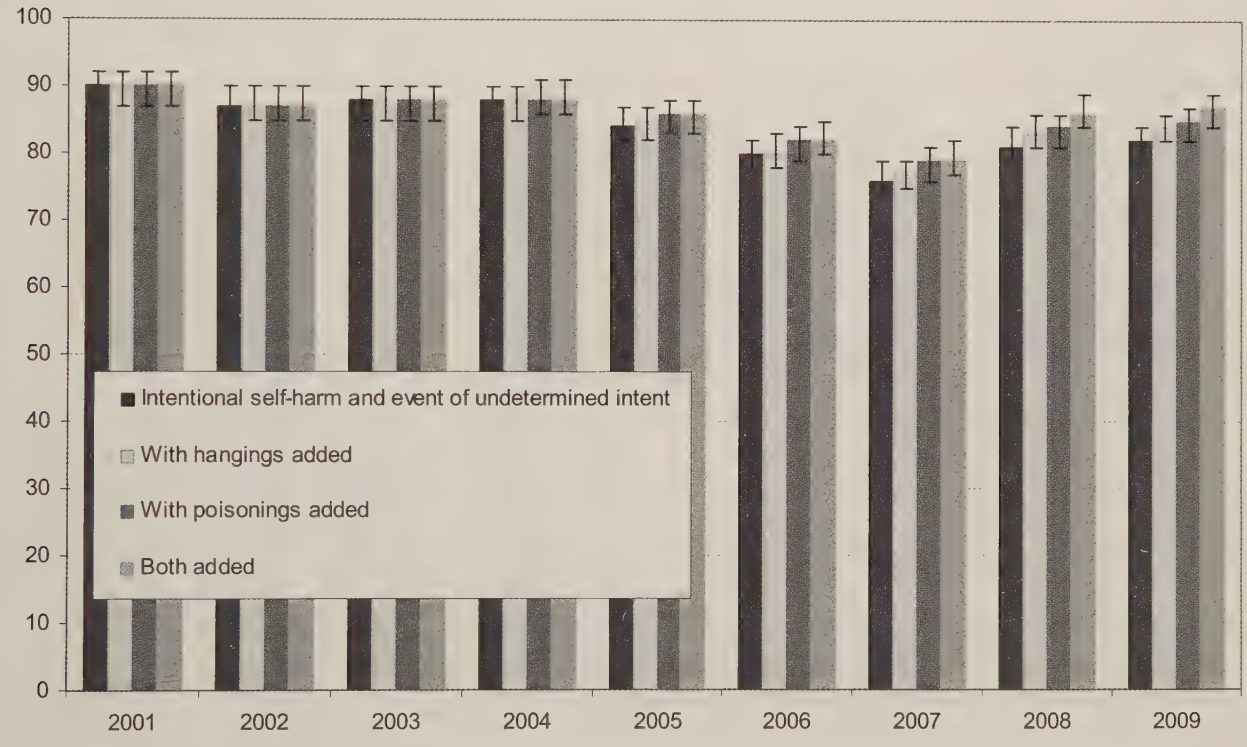
Between 2007 and 2009 a similar effect was seen when poisonings were included. In 2007 the rate increased from 76 deaths per million population to 79 deaths per million population. In 2008 the rate increased from 81 deaths per million population to 84 deaths per million population, and in 2009, adding poisoning, increased the rate from 82 deaths per million population to 85 deaths per million population.

The effect of adding both accidental hangings and poisonings had greatest overall effect on the suicide mortality rates for 2008 and 2009.

Figure 3 **Simulations[1] of age-standardised mortality rates for suicide deaths[2], 2001–09 (scenario 1)**

England and Wales

Rate per million population



1 Addition of all deaths where the verdict was a narrative and the underlying cause of death was accidental hanging or poisoning.

2 Includes deaths with an underlying cause of death intentional self-harm and event of undetermined intent.

Source: ONS

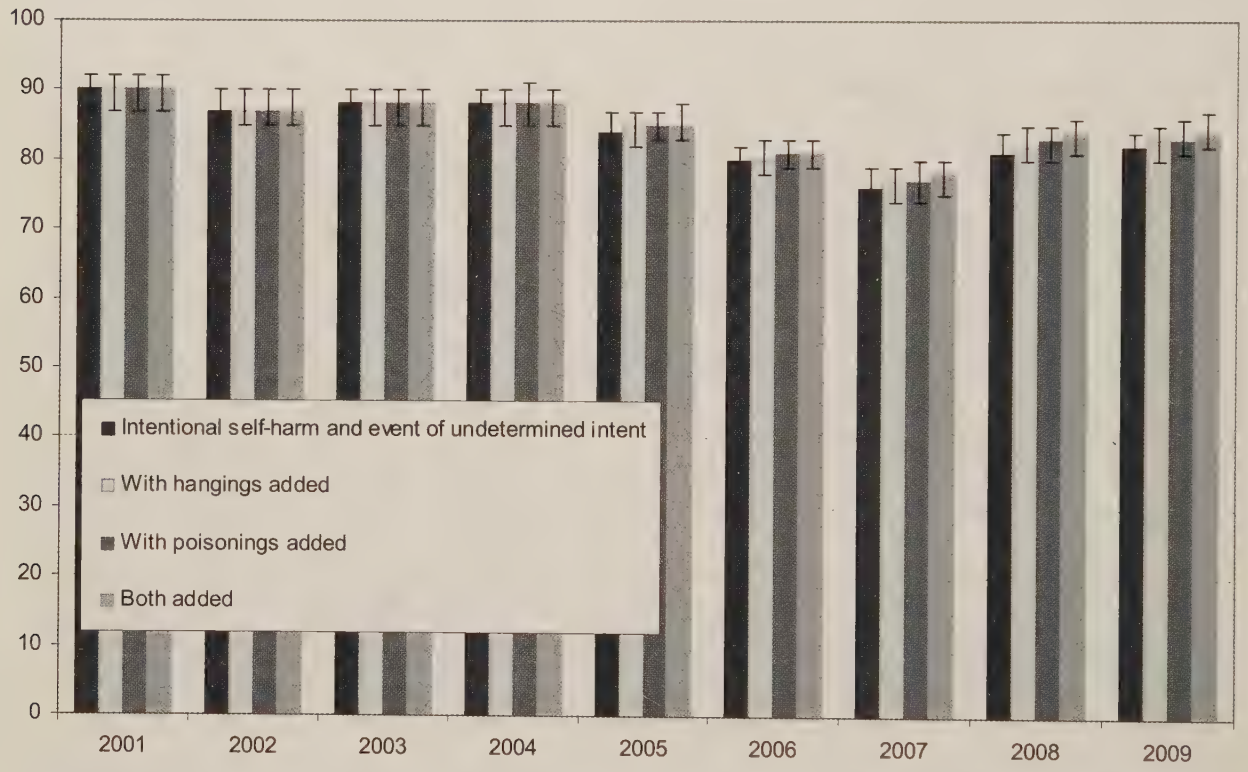
In 2009 the effect of adding both accidental hangings and poisonings would increase the mortality rate from 82 deaths per million population, to 87 deaths per million population, the highest rate since 2004 when the suicide rate was 88 deaths per million population. The differences in the mortality rates are not statistically significant. This simulation could be considered the worst-case scenario as it assumes that all narrative verdicts coded as accidental hangings and poisonings should be classified as intentional self-harm.

Figure 4 shows how the suicide rate would be change if half the accidental hanging and poisoning deaths with a narrative verdicts were added to those coded as intentional self-harm and events of undetermined intent (scenario 2). As in scenario 1, there is no effect on the rates between 2001 and 2004. For the remaining years the effect is less noticeable. In 2008 the effect of adding half of accidental hangings would increase the mortality rate from 81 deaths per million population, to 82 deaths per million population. In 2009 the effect was to increase the rate from 82 to 83 deaths per million population.

Figure 4 **Simulations[1] of age-standardised mortality rates for suicide deaths[2], 2001–09 (scenario 2)**

England and Wales

Rate per million population



1 Addition of 50 per cent of deaths where the verdict was a narrative and the underlying cause of death was accidental hanging or poisoning.

2 Includes deaths with an underlying cause of death intentional self-harm and event of undetermined intent.

Source: ONS

Similar rises could be seen when half of accidental poisonings were included for years 2008 and 2009: with the mortality rate increasing to 83 deaths per million population, from 81 and 82 deaths per million population respectively for these years. Combining both hangings and poisonings with the intentional self-harm deaths would increase the mortality rate from 82 deaths per million population, to 84 deaths per million population in 2009. Again, the differences in the mortality rates are not statistically significant. While it is likely that a higher proportion of hangings than poisonings are intentional self-harm deaths, without sufficient information from the coroner, these deaths have to be classified as accidental.

Gender specific rates were calculated for all years and the results were similar to the all persons figures shown in the simulations above. Tables 4 and 5 show the figures for the two simulations for males and females for 2009. For both scenarios, the effect for males is greater than for females. Table 3 shows the reported ASMRs together with the revised ASMRs once all accidental hangings and poisonings are added. For males the effect is most visible when both hangings and poisonings are included, increasing the rate from 127 deaths per million population to 134 deaths per million population. For females, the effect of combining these two mechanisms increased the rate from 38 deaths per million population to 41 deaths per million population.

Table 3 Simulations of age-standardised mortality rates for suicide deaths: by sex, 2009 (scenario 1)

England and Wales

Rate per million population

2009	Suicide (intentional self-harm and event of undetermined intent)			Addition of deaths where the verdict was a narrative and the underlying cause of death was accidental hanging			Addition of deaths where the verdict was a narrative and the underlying cause of death was accidental poisoning			Addition of deaths where the verdict was a narrative and the underlying cause of death was accidental hanging or poisoning		
	ASMR	Lower 95 per cent CI	Upper 95 per cent CI	New ASMR	Lower 95 per cent CI	Upper 95 per cent CI	New ASMR	Lower 95 per cent CI	Upper 95 per cent CI	New ASMR	Lower 95 per cent CI	Upper 95 per cent CI
Males	127	(123)	(131)	131	(126)	(135)	131	(126)	(135)	134	(130)	(139)
Females	38	(35)	(40)	38	(36)	(41)	40	(37)	(42)	41	(38)	(43)

Source: ONS

Table 4 shows the effect of adding 50 per cent of accidental hangings and poisonings with a narrative verdict. Although the combination of both hangings and poisonings increases the rates by four deaths per million population for males from 127 to 131 deaths per million population, the differences in the rates are not statistically significant. The effect on the female rates was lower, and it is only the inclusion of the accidental poisonings that increases the rate from 38 deaths per million population, to 39 deaths per million population.

Table 4 Simulations of age-standardised mortality rates for suicide deaths: by sex, 2009 (scenario 2)

England and Wales — Rate per million population

2009	Suicide (intentional self-harm and event of undetermined intent)			Addition of 50 per cent deaths where the verdict was a narrative and the underlying cause of death was accidental hanging			Addition of 50 per cent of deaths where the verdict was a narrative and the underlying cause of death was accidental poisoning			Addition of 50 per cent of deaths where the verdict was a narrative and the underlying cause of death was accidental hanging or poisoning		
	ASMR	Lower 95 per cent CI	Upper 95 per cent CI	New ASMR	Lower 95 per cent CI	Upper 95 per cent CI	New ASMR	Lower 95 per cent CI	Upper 95 per cent CI	New ASMR	Lower 95 per cent CI	Upper 95 per cent CI
Males	127	(123)	(131)	129	(124)	(133)	129	(124)	(133)	131	(126)	(135)
Females	38	(35)	(40)	38	(36)	(40)	39	(36)	(41)	39	(37)	(41)

Source: ONS

Consistency of cause coding for narrative verdicts

The results of the cause coding exercise are shown in Table 5. Analysis of the new cause codes against the existing codes showed that 22 per cent of records (1,731) were not an exact match at the fourth digit level of the ICD–10 cause code and 10 per cent of records (797) had moved to another cause. Of the 797 records that had moved cause grouping, nearly a third (31 per cent) were now classified as external causes of mortality. A further 18 per cent had moved to diseases of the circulatory system and 9 per cent to both diseases of the digestive system and diseases of the respiratory system. The remainder were spread across other causes.

Although 247 records were reclassified as external causes of death, 211 records originally coded as external causes moved to other cause groups with the majority of these (46 per cent) classified as diseases of the circulatory system or the respiratory system. There were 10 per cent now classified as mental and behavioural disorders and a similar proportion (9 per cent) as diseases of the digestive system. Although the movement in and out of the external cause group experienced the greatest change, overall there was only a net gain of 36 records for external causes.

There were only five new records with an underlying cause of intentional self-harm. These records had originally been classified as accidental, demonstrating a high consistency of coding these potentially difficult to code records. For accidental hangings and poisonings, there were match rates of 93 and 92 per cent respectively.

The research showed that although in some the cases the coders assigned a different underlying cause of death, overall they applied the ICD classification rules consistently.

The examination of the manner of death coding frame showed that additional terms commonly used by coroners to describe intentional-self harm could be included to improve the accuracy of coding some narrative verdicts. Improvements could also be made to identify more easily that the manner of death had been obtained from a narrative verdict.

Table 5 Changes in the ICD–10 broad cause of death group

Broad cause of death group (ICD-10 capters) / Existing cause of death code	New cause of death code																		
	Certain infections and parasitic diseases	Neoplasms	Diseases of blood forming organs/immune mechanism	Endocrine, nutritional and met diseases	Mental and behavioural disorders	Diseases of nervous system	Diseases of the ear and mastoid processes	Diseases of the circulatory system	Diseases of respiratory system	Diseases of digestive system	Diseases of the skin	Diseases of muscuskeletal system and connective tissue	Diseases of the genitourinary system	Pregnancy and childbirth	Conditions originating in perinatal period	Congenital malformations	Symptoms signs and abnormal clinical and lab findings	External causes of mortality	Total
Certain infections and parasitic diseases	99	3	1	2	0	1	0	2	3	1	0	0	2	0	1	0	0	8	**123**
Neoplasms	1	1260	1	0	0	1	0	8	2	12	0	0	1	0	0	0	0	12	**1298**
Diseases of blood forming organs/immune mechanism	0	2	20	0	0	0	0	0	0	1	1	0	0	0	0	0	0	3	**27**
Endocrine, nutritional and met diseases	1	2	0	112	3	0	0	3	0	2	0	3	1	0	1	0	0	5	**133**
Mental and behavioural disorders	1	0	1	1	102	1	0	7	3	2	1	0	1	1	0	0	2	14	**137**
Diseases of nervous system	0	0	0	1	4	105	0	3	0	0	0	2	0	1	0	0	0	7	**123**
Diseases of the ear and mastoid processes	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	**2**
Diseases of the circulatory system	3	3	1	6	4	0	0	1316	7	17	1	8	6	0	0	4	1	77	**1454**
Diseases of respiratory system	4	5	1	0	2	2	0	12	238	2	1	1	0	0	1	2	1	12	**284**
Diseases of digestive system	9	7	0	3	2	1	0	26	9	760	0	6	2	0	2	1	2	65	**895**
Diseases of the skin	2	0	0	1	0	0	0	3	0	0	23	0	1	0	0	0	0	3	**33**
Diseases of musculoskeletal system and connective tissue	2	0	0	0	0	4	0	8	6	10	1	345	1	0	0	1	0	18	**396**
Diseases of the genitourinary system	1	2	1	3	1	1	0	5	1	5	0	1	146	0	0	1	0	16	**184**
Pregnancy and childbirth	0	0	0	0	0	0	0	0	0	0	0	0	1	25	0	0	0	0	**26**
Conditions originating in perinatal period	0	0	0	0	0	0	0	1	0	0	0	0	0	0	11	0	0	2	**14**
Congenital malformations	0	0	0	0	0	2	0	4	2	2	0	0	3	0	0	111	1	2	**127**
Symptoms signs and abnormal clinical and lab findings	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	192	3	**197**
External causes of mortality	7	9	3	6	22	11	1	63	35	20	2	10	10	0	0	2	10	2250	**2461**
Total	**130**	**1293**	**29**	**135**	**140**	**130**	**3**	**1462**	**306**	**834**	**30**	**376**	**175**	**27**	**16**	**122**	**209**	**2497**	**7914**

Source: ONS

Discussion

There has been a sharp increase in the number of narrative verdicts returned by coroners in England and Wales since 2001. If there is insufficient information received from the coroner, the death has to be coded as accidental. The results of the exercise on coding consistency compare well with other studies of cause of death coding reliability (Harteloh *et al.*, 2010). However, it is apparent that some difficult to code injury and poisoning records are being coded as accidents when they may be intentional self-harm deaths.

The simulation of higher suicide mortality rates by adding half or even all accidental deaths involving hangings and poisonings to intentional self-harm deaths did not significantly affect the reported mortality rates for 2001 to 2009. However, if the current trend in the use of narrative verdicts continues, and the proportion of these that are difficult to code also increases, this is likely to affect significantly reported mortality rates in the future.

Cause of death coders are reliant solely on the description of the events surrounding the death contained in the narrative text, together with the cause of death, to classify the death according to ICD rules. The ICD rules do not allow the coder to infer anything, and without clear reporting by the coroner of the intent, or involvement of a third party, the death has to be coded as an accident. However as the use of narrative verdicts is increasing, action is required to ensure that the results of coroners' investigation of deaths are used to provide the best possible information to code the underlying cause of death.

It is clear that trying to establish intent, or the involvement of third party, is difficult if there is limited information from the coroner. Form Rev 99 B (Part V) is used by coroners to provide information for statistical purposes to allow the cause of death to be coded according to ICD rules. However, at present the coroner is only asked to provide further information if the death is an accident or misadventure, although many coroners complete this section for all deaths that they register. As all the information provided on the Part V is used to code cause of death, it would be logical to add tick boxes to this form to establish the manner of death. The categories for manner of death would be:

- natural disease
- accidental injury and poisoning
- intentional self-harm
- assault
- event undetermined intent
- legal intervention
- operation of war
- complication of medical or surgical care

ONS is currently working with coroners to consider ways of recording information from narrative verdicts to allow more accurate coding of cause of death.

Limitations were also found in the coding frame used to code the manner of death. Additional common phrases used by coroners in their narrative verdicts were identified and additions to the terms allowed for classification of intentional self-harm will be added to the existing coding frame. Improvements will also allow better identification that the death was registered with a narrative verdict. Analysis of the impact of these changes on mortality statistics is planned for 2011.

Limitations of the analysis

The research focused on the two dominant methods for intentional self-harm – hanging and poisoning. Narrative verdicts classified as accidental deaths involving these two mechanisms were investigated and revised mortality rates calculated using simulations. Other mechanisms for intentional self-harm, for example drowning, were not considered in the analysis as the numbers of deaths using these methods were found to be relatively small. However, a combination of all possible mechanisms may affect the sensitivity analysis although this was not investigated.

The cause coding exercise only used selected narrative verdict records for 2004 to 2008. This was due to the time involved in carrying out such an exercise and the fact that processed records for 2009 were not available for use at the time the coding exercise was carried out. Some of the records may have been recoded by the coder who originally coded the death. This could have had an effect on the results, as a proportion of records may have been familiar to the coder involved. However, it was not possible to measure the level of overlap from the data supplied.

Although all available text received from coroners was reviewed, sometimes the narrative verdict was missing from the record provided at death registration. For a small proportion of deaths, this information cannot be obtained even after requests from the relevant coroner. If the information simply mentions that there was a narrative verdict, then the coder has to classify the death as accidental according to ICD rules.

In order to establish any regional variation in the use of narrative verdicts, further research by coroner district will be needed. If a high percentage of narrative verdicts are used by a small number of coroners this could have an effect on mortality rates at local area level, especially if the level of detail from these coroners does not allow for accurate coding of the intent. The effectiveness of measures to reduce intentional self-harm at local area level could therefore be misleading, if trends are based on statistics that over report accidental deaths. Further research by geography is planned for the future.

Conclusions

This article reviews the impact of narrative verdicts on mortality statistics in England and Wales from 2001 to 2009. The findings show that, while the coding of narrative verdicts has been consistent over the period, the lack of clear information from some coroners, relating to the intent, or involvement of a third party, can affect the coding of the underlying cause of death. This means that some deaths may have been classified as accidental, when they are more likely to be intentional, but the effect on reported suicide mortality rates is not statistically significant. Consequently, there will not be a revision of previously published mortality rates for these years. However, if current trends in the use of narrative verdicts continue, the effect on mortality rates may become large enough to affect the reliability of National Statistics. To help overcome this, some improvements have been made to the coding frame used by ONS to record the manner of death following an inquest. ONS is also working with coroners to consider ways of recording information from narrative verdicts to allow more accurate coding of cause of death.

Acknowledgements

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Notes to Tables

United Kingdom
The United Kingdom comprises England, Wales, Scotland and Northern Ireland. The Channel Islands and the Isle of Man are not part of the United Kingdom.

Population
The estimated and projected resident population of an area includes all people who usually live there, whatever their nationality. Members of HM and US Armed Forces in the United Kingdom are included on a residential basis wherever possible. HM Forces stationed outside the United Kingdom are not included. Students are taken to be resident at their term time addresses.
Further information can be found at: www.statistics.gov.uk/popest

Live births
For England and Wales, figures relate to the number of births occurring in a period; for Scotland and Northern Ireland, figures relate to births registered in a period. By law, births must be registered within 42 days in England and Wales, within 21 days in Scotland, and within 42 days in Northern Ireland. In England and Wales, where a birth is registered later than the legal time period, and too late to be included in the count for the year of occurrence, it will be included in the count for the following year.

The age-specific fertility rate (ASFR), is the number of births per 1,000 women in the stated age group. The total fertility rate (TFR), is the average number of children that a group of women would have if they experienced the ASFRs for a particular year throughout their childbearing lives. The TFR reflects the current intensity of childbearing and the rate at which the population replaces itself. The TFR is a synthetic measure since ASFRs do not normally remain stable during the childbearing life span of a woman.

Perinatal mortality
In October 1992 the legal definition of a stillbirth was changed, from a baby born dead after 28 completed weeks of gestation or more, to one born dead after 24 completed weeks of gestation or more.

Period expectation of life
The life tables on which these expectations are based use death rates for the given period to describe mortality levels for each year. Each individual year shown is based on a three-year period, so that for instance 1986 represents 1985–87. Further information can be found at www.statistics.gov.uk/StatBase/Product.asp?vlnk=14459

Deaths
Figures for England and Wales represent the number of deaths registered in each year up to 1992, and the number of deaths occurring each year from 1993 and 2005. Figures for 2006 onwards relate to registrations. All infant, neonatal and perinatal mortality data represents registrations. All figures for Scotland and Northern Ireland relate to the number of deaths registered in each year.

Coding cause of death
Between 1 January 1984 and 31 December 1992, ONS applied its own interpretation of the International Classification of Diseases (ICD) Section Rule 3 in the coding of deaths where terminal events and other 'modes of dying' such as cardiac arrest, cardiac failure, certain thrombembolic disorders, and unspecified pneumonia and bronchopneumonia, were stated by the certifier to be the underlying cause of death and other major pathology appeared on the certificate. In these cases ONS Rule 3 allowed the terminal event to be considered a direct sequel to the major pathology and that primary condition was selected as the underlying cause of death. Prior to 1984 and between 1 January 1993 and 31 December 2000, such certificates were coded to the terminal event. ONS also introduced automated coding of cause of death in 1993, which may also affect comparisons of deaths by cause from 1993. Further details can be found in the annual volumes *Mortality statistics: Cause 1984*, Series DH2 no. 11, and *Mortality statistics: Cause 1993 (revised) and 1994*, Series DH2 no. 21.

From 1 January 2001, under ICD–10, Rule 3 was again changed – for details see the article in *Health Statistics Quarterly* 13. This resulted in a fall in the death rates from respiratory diseases, notably pneumonia, and consequently slight rises in the rates for other causes (for example strokes). For details of the major changes between ICD–9 and ICD–10, see the articles in *Health Statistics Quarterly* 08, 13 and 14.

Age-standardised mortality
Directly age-standardised rates make allowances for changes in the age structure of the population. The age-standardised rate for a particular condition is that which would have occurred if the observed age-specific rates for the condition had applied in a given standard population. Table 2.2 uses the European Standard Population. This is a hypothetical population standard which is the same for both males and females allowing standardised rates to be compared for each sex, and between males and females.

Abortions
Figures relate to numbers occurring in a period.

Marriages and divorces
Marriages are tabulated according to date of solemnisation. Divorces are tabulated according to date of decree absolute. The term 'divorces' includes decrees of nullity. The fact that a marriage or divorce has taken place in England, Wales, Scotland or Northern Ireland does not mean either of the parties is resident there.

Civil Partnerships
The Civil Partnership Act 2004 came into force on 5 December 2005 in the UK, the first day couples could give notice of their intention to form a civil partnership. The first day that couples could formally form a partnership was 19 December 2005 in Northern Ireland, 20 December 2005 in Scotland and 21 December 2005 in England and Wales. (18 civil partnerships were formed under special arrangements before these dates. These are included in the figures for England and Wales).

Civil partnerships are tabulated according to date of formation and area of occurrence. The fact that a civil partnership has taken place in England, Wales, Scotland or Northern Ireland does not necessarily mean either of the parties is resident there.

International Migration
The UN recommends the following definition of an international long-term migrant:
An *international long-term migrant* is defined as a person who moves to a country other than that of his or her usual residence for a period of at least a year (12 months), so that the country of destination effectively becomes his or her new country of usual residence.
Long-Term International Migration estimates are compiled from several main sources of migration data:
- The richest source of information on international migrants comes from the International Passenger Survey (IPS), which is a sample survey of passengers arriving at, and departing from, the main United Kingdom air and sea ports and Channel Tunnel. This survey provides migration estimates based on respondents' *intended* length of stay in the UK or abroad and excludes most persons seeking asylum and some dependants of such asylum seekers.
- Two adjustments are made to account for people who do not realise their intended length of stay on arrival. First, visitor data from the IPS are used to estimate 'visitor switchers': those people who initially come to or leave the UK for a short period but subsequently stay for a year or longer. Second, people who intend to
be migrants, but who in reality stay in the UK or abroad for less than a year ('migrant switchers'), are estimated from IPS migrant data.
- Home Office data on asylum seekers and their dependants.
- From 2008 onwards, data from the Northern Ireland Statistics and Research Agency is used to estimate international migration to and from Northern Ireland.
- For 1991-2007, estimates of migration between the UK and the Irish Republic are estimated using information from the Irish Quarterly National Household Survey and the National Health Service Central Register. From 2008, the IPS has been used to measure these flows.

Further information on long-term migration estimates can be found at www.statistics.gov.uk/StatBase/Product.asp?vlnk=507

Internal Migration
Figures in Table 8.1 are based on the movement of NHS doctors' patients between former Health Authorities (HAs) in England and Wales, and Area Health Boards in Scotland and Northern Ireland. Yearly and quarterly figures have been adjusted to take account of differences in recorded cross-border flows between England and Wales, Scotland and Northern Ireland.

Estimates of internal migration are based on the date of acceptance of the new patient by the HA and a one month time lag is assumed. It has been established that NHSCR data under-report the migration of males aged between 16 and 36. See:
www.statistics.gov.uk/downloads/theme_population/Revising_Internal_Migration_Estimates.pdf

EU Enlargement
The coverage of European countries in Table 1.1 has been updated to reflect the enlargement of the EU to 27 member countries (EU27). On 1 May 2004, 10 new member countries were added: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. On 1 January 2007 a further 2 countries were added: Bulgaria and Romania.

Sources
Figures for Scotland and Northern Ireland have been provided by the General Register Office for Scotland and the Northern Ireland Statistics and Research Agency respectively. The International Passenger Survey (see International migration) is conducted by the Surveys and Administrative Sources Directorate of ONS.

Calculating quarterly rates
Quarterly rates are calculated using adjustments which take into account the number of days in the month/year. The denominators used for calculating quarterly rates have been produced from mid-year population estimates and projections.

Rounding
All figures are rounded independently; constituent parts may not add to totals. Generally numbers and rates per 1,000 population are rounded to one decimal place (e.g. 123.4); where appropriate, for small figures (below 10.0), two decimal places are given (e.g. 7.62). Figures which are provisional or estimated are given in less detail (e.g. 123 or 7.6 respectively) if their reliability does not justify giving the standard amount of detail. Where figures need to be treated with particular caution, an explanation is given as a footnote.

Latest figures
Figures for the latest quarters and years may be provisional, these will be updated in final figures when data is available. Where figures are not yet available, cells are left blank.

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Symbols

..	not available	-	nil or less than half the final digit shown
:	not applicable	p	provisional

Table 1.1 **Population and vital rates: international**

Selected Countries

Numbers (thousands)/Rates per thousand

Year	United Kingdom	Austria	Belgium	Bulgaria	Cyprus[1]	Czech Republic	Denmark[2,3]	Estonia	Finland[3,4]	France[5]	Germany[6]	Greece[7]	Hungary
Population (thousands)													
2001	59,113	8042	10,287	7913	701 P,20	10,224	5359	1364	5188	59,476	82,340	10,950	10,188
2002	59,319	8082	10,333	7869	710 10,20	10,201	5374	1359	5201	59,894	82,482	10,988	10,159
2003	59,552	8118	10,372	7824	721 20	10,202	5387	1354	5213	60,304	82,520	11,024	10,130
2004	59,842	8169	10,417	7781	737 20	10,207	5401	1349	5228	60,734	82,501	11,062	10,107
2005	60,235	8225	10,473	7740	758 20	10,234	5416	1346	5246	61,181	82,464	11,104	10,087
2006	60,584	8268	10,542	7699	771 20	10,267	5435	1344	5266	61,585 P	82,366	11,149	10,071
2007	60,986	8301	10,623	7660	785 20	10,323	5457	1342	5289	61,938 P	82,263	11,193	10,056
2008	61,398	8337	10,667 J	7623	793 20,P	10,430	5489	1341	5313	62,277 P	82,127 P	11,237	10,038
2009	61,792	8363	10,753 J P	7585	800 20 P	10,491 P	5519	1340 P	5337 P	62,610 P	81,735 P	11,283	10,020 P
2010	..	8375	10,840 J,P	7534 P	803	10,517 P	5535	1340 J,P	5351 J	62,917 P	81,781 J,P	11,305 J	10,004 P
Population changes (per 1,000 per annum)													
2001-02	3.5	5.0	4.5	-5.6	12.8	-2.2	2.8	-3.7	2.5	7.0	1.7	3.5	-2.8
2002-03	3.9	4.5	3.8	-5.7	15.5	0.1	2.4	-3.7	2.3	6.8	0.5	3.3	-2.9
2003-04	4.9	6.3	4.3	-5.5	22.2	0.5	2.6	-3.7	2.9	7.1	-0.2	3.4	-2.3
2004-05	6.6	6.9	5.4	-5.3	28.5	2.6	2.8	-2.2	3.4	7.4	-0.4	3.8	-2.0
2005-06	5.8	5.2	6.6	-5.3	17.2	3.2	3.5	-1.5	3.8	6.6	-1.2	4.1	-1.6
2006-07	6.6	4.0	7.7	-5.1	18.2	5.5	4.0	-1.5	4.4	5.7	-1.3	3.9	-1.5
2007-08	6.8	4.3	4.1	-4.8	10.2	10.4	5.9	-0.7	4.5	5.5	-1.7	3.9	-1.8
2008-09	6.4	3.1	8.1	-5.0	8.8	5.8	5.5	-0.7	4.5	5.3	-4.8	4.1	-1.8
2009-10	..	1.4	8.1	-6.7	3.8	2.5	2.9	0.0	2.6	4.9	0.6	1.9	-1.6
pma (per 1,000 population per annum)													
2001	11.3	9.4	11.1	8.6	11.6	8.9	12.2	9.3	10.8	13.0	8.9	9.3	9.5
2002	11.3	9.7	10.8	8.5	11.1	9.6	11.9	9.6	10.7	12.7	8.7	9.5	9.5
2003	11.7	9.5	10.8	8.6	11.2	9.2	12.0	9.6	10.9	12.6	8.6	9.5	9.3
2004	12.0	9.7	11.1	9.0	11.3	9.6	12.0	10.4	11.0	12.6	8.6	9.6	9.4
2005	12.0	9.5	11.3	9.2	10.9	10.0	11.9	10.7	11.0	12.7	8.3	9.7	9.7
2006	12.4	9.4	11.5	9.6	11.3	10.3	11.9	11.1	11.2	12.9	8.2	10.0	9.9
2007	12.7	9.2	11.4	9.8	10.9	11.1	11.7	11.8	11.1	12.7	8.3	10.0	9.7
2008	12.9	9.3	11.7	10.2	11.6	11.5	11.8	12.0	11.2	12.8	8.3	10.5	9.9
2009	12.8	9.1	11.8 P	10.7	12.0	11.3	11.4	11.8	11.3	12.7	8.0	10.5 P	9.6
Death rate (per 1,000 population per annum)													
2001	10.2	9.3	10.1	14.2	6.9	10.5	10.9	13.6	9.4	8.9	10.1	9.4	13.0
2002	10.2	9.4	10.2	14.3	7.3	10.6	10.9	13.5	9.5	8.9	10.2	9.5	13.1
2003	10.3	9.5	10.3	14.3	7.2	10.9	10.7	13.4	9.4	9.2	10.3	9.6	13.4
2004	9.7	9.1	9.8	14.2	7.1	10.5	10.3	13.1	9.1	8.4	9.9	9.5	13.1
2005	9.7	9.1	9.9	14.6	7.2	10.5	10.1	12.9	9.1	8.6	10.1	9.5	13.5
2006	9.4	9.0	9.6	14.7	6.7	10.2	10.2	12.9	9.1	8.4	10.0	9.5	13.1
2007	9.4	9.0	9.5	14.8	6.9	10.1	10.2	13.0	9.3	8.4	10.1	9.8	13.2
2008	9.4	9.0	9.8	14.5	6.5	10.1	9.9	12.4	9.2	8.6	10.3	9.6	13.0
2009	9.1	9.3	9.7 P	14.2	6.5	10.2	9.9	12.1	9.3	8.6	10.3	9.6 P	13.0

Note: Data for all countries except the UK has been taken from the United Nations Monthly Bulletin of Statistics at http://unstats.un.org/unsd/mbs/app/DataSearchTable.aspx
In a very small number of cases, particulary for the latest year, European data has been obtained from Eurostat as it is not yet available from the UN Monthly Bulletin of Statistics. All 2009 birth and death rates have been obtained from Eurostat. Eurostat data can be found at: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database
Estimated population is mid-year throughout, unless otherwise indicated.
The UK figures in this table include the revised 2002-2008 population estimates which were published on 13 May 2010.
For historical data for the United Kingdom please see Table 1.2 at:
www.statistics.gov.uk/downloads/theme_health/Pop-national12.xls
For historical data for all other countries prior to 1997 please see Table 1 at the link:
http://unstats.un.org/unsd/demographic/products/dyb/dybhist.htm
This table was updated on 7 February 2011. Consequently it does not include any new or revised figures added to the sources after this date.

Table 1.1 continued **Population and vital rates: international**

Selected Countries — Numbers (thousands)/Rates per thousand

Year	Republic Irish	Italy	Latvia	Lithuania	Luxembourg	Malta[8]	Netherlands	Poland[9]	Portugal[10]	Romania	Slovakia	Slovenia
Population (thousands)												
2001	3,847 [21]	56,977	2355	3481	442	385	16,046	38,251	10,293	22,408	5380	1992
2002	3,920 [21]	57,157	2339	3469	446	387	16,149	38,232	10,368	21,795	5379	1996
2003	3,979 [21]	57,605	2325	3454	452	399	16,225	38,195	10,441	21,734	5379	1997
2004	4,044 [21]	58,175	2313	3436	458	401	16,282	38,180	10,502	21,673	5383	1997
2005	4,131 [21]	58,607	2301	3414	465	404	16,320	38,161	10,549	21,624	5387	2001
2006	4,235 [21]	58,941	2288	3394	473	406	16,346	38,132	10,584	21,584	5391	2009
2007	4,339 [21,P]	59,375	2276	3376	480	409	16,382	38,116	10,608	21,538	5398	2019
2008	4,422 [21,P]	59,832	2266	3358	489	412	16,446	38,116 [J]	10,622	21,504	5407	2023
2009	4,459 [21,P]	60,187 [P]	2255	3339 [P]	494 [J]	413	16,514 [P]	38,153 [P]	10,632	21,470	5418	2042
2010	4,471 [21,P]	60,340 [J]	2240 [J,P]	3329 [J]	502 [J,P]	413 [J]	16,603 [P]	38,194 [P]	10,638 [J,P]	21,433 [P]	5430 [P]	2049 [P]
Population changes (per 1,000 per annum)												
2001-02	19.0	3.2	-6.8	-3.4	9.0	5.2	6.4	-0.5	7.3	-27.4	-0.2	2.0
2002-03	15.1	7.8	-6.0	-4.3	13.5	31.0	4.7	-1.0	7.0	-2.8	0.0	0.5
2003-04	16.3	9.9	-5.2	-5.2	13.3	5.0	3.5	-0.4	5.8	-2.8	0.7	0.0
2004-05	21.5	7.4	-5.2	-6.4	15.3	7.5	2.3	-0.5	4.5	-2.3	0.7	2.0
2005-06	25.2	5.7	-5.6	-5.9	17.2	5.0	1.6	-0.8	3.3	-1.8	0.7	4.0
2006-07	24.6	7.4	-5.2	-5.3	14.8	7.4	2.2	-0.4	2.3	-2.1	1.3	5.0
2007-08	19.1	7.7	-4.4	-5.3	18.8	7.3	3.9	0.0	1.3	-1.6	1.7	2.0
2008-09	8.4	5.9	-4.9	-5.7	10.2	2.4	4.1	1.0	0.9	-1.6	2.0	9.4
2009-10	2.7	2.5	-6.7	-3.0	16.2	0.0	5.4	1.1	0.6	-1.7	2.2	3.4
Live birth rate (per 1,000 population per annum)												
2001	15.1	9.2	8.3	9.1	12.4	10.1	12.6	9.6	11.0	9.8	9.5	8.8
2002	15.4	9.4	8.6	8.7	12.0	10.1	12.5	9.3	11.0	9.7	9.5	8.8
2003	15.5	9.4	9.0	8.9	11.7	10.2	12.3	9.2	10.8	9.8	9.6	8.7
2004	15.3	9.7	8.8	8.9	11.9	9.7	11.9	9.3	10.4	10.0	10.0	9.0
2005	14.9	9.5	9.3	8.9	11.5	9.6	11.5	9.5	10.4	10.2	10.1	9.1
2006	15.2	9.5	9.7	9.2	11.7	9.6	11.3	9.8	10.0	10.2	10.0	9.4
2007	16.3	9.5	10.2	9.6	11.4	9.5	11.1	10.2	9.7	10.0	10.1	9.8
2008	17.0	9.6	10.6	10.4	11.5	10.0	11.2	10.9	9.8	10.3	10.6	10.8
2009	16.7	9.5	9.6	11.0	11.4	10.0	11.2	10.9	9.4	10.4	11.3	10.7
Death rate (per 1,000 population per annum)												
2001	7.9	9.6	14.0	11.6	8.4	7.6	8.7	9.5	10.2	11.6	9.7	9.3
2002	7.6	9.8	13.9	11.8	8.4	7.8	8.8	9.4	10.2	12.4	9.6	9.4
2003	7.3	10.2	13.9	11.9	9.0	7.9	8.7	9.6	10.4	12.3	9.7	9.7
2004	7.1	9.4	13.8	12.0	7.8	7.5	8.4	9.5	9.7	11.9	9.6	9.3
2005	6.8	9.7	14.2	12.8	7.8	7.8	8.4	9.7	10.2	12.1	9.9	9.4
2006	6.5	9.5	14.5	13.2	8.0	7.9	8.3	9.7	9.6	12.0	9.9	9.1
2007	6.5	9.7	14.5	13.5	8.1	7.6	8.1	9.9	9.8	11.7	10.0	9.2
2008	6.4	9.7	13.7	13.1	7.4	7.9	8.2	10.0	9.8	11.8	9.8	9.1
2009	6.5	9.8	13.3	12.6	7.4	7.8	8.1	10.1	9.8	12.0	9.8	9.2

1 Republic of Cyprus - Data refer to Government controlled areas.
2 Denmark - Excluding Faeroe Islands and Greenland.
3 Finland, Denmark and Sweden - Population statistics are compiled from registers.
4 Finland - Including Aland Islands.
5 France - Excludes diplomatic personnel outside the country and includes members of alien armed forces not living in military camps and foreign diplomatic personnel of alien armed forces not living in military camps and foreign diplomatic personnel not living in embassies or consulates. Also Excludes Overseas Departments; namely; French Guiana; Guadeloupe; Martinique and Reunion.
6 Including former GDR throughout.
7 Greece - population excludes armed forces stationed outside the country but includes alien forces stationed in the area.
8 Malta - Including civilian nationals temporarily outside the country.
9 Poland - excluding civilian aliens within the country but including civilian nationals temporarily outside the country.
10 Portugal - including the Azores and Madeira islands.
11 Spain - including the Balearic and Canary Islands.
12 In 2001, the European Union consisted of 15 countries. This has since been expanded to include: 10 countries (2004-EU25); 2 countries (2007-EU27). In this table, all totals include the EU27.
13 Australia - Mid-year estimates have been adjusted for underenumeration; at latest census.
14 Population estimates for Canada have been adjusted for census net undercoverage (including adjustment for incompletely enumerated Indian reserves). Estimates for 2001-2006 are final intercensal estimates. Estimates for 2007 and 2008 are updated postcensal estimates. Estimates for 2009 are preliminary postcensal estimates. Birth rates for 2007-2009 taken from Statistics Canada.
15 New Zealand - Excluding diplomatic personnel and armed forces stationed outside country; also excluding alien armed forces within the country.
16 China - For statistical purposes all data for China do not include those for the Hong Kong SAR, Macao SAR and Taiwan province of China. Population data have been estimated on the basis of the annual National Sample Surveys on Population Changes. Except 2005 population data which are estimated from the National Sample Survey 1 per cent population.
17 India - Including the Indian held part of Jammu and Kashmir, the final status of which has not yet been determined. Population data for 2002 onwards refer to national projections.
18 Japan - excluding diplomatic personnel outside the country and foreign military and civilian personnel and their dependents stationed in the area
19 USA - excluding armed forces overseas and civilian citizens absent from the country for extended periods.
20 Indicates population estimates of uncertain reliability.
21 Data refer to 15 April.
P Provisional, preliminary or estimated figure.
J Denotes population estimates as at 1 January.

Sources: Office for National Statistics, United Nations, Eurostat.

Table 1.1 continued **Population and vital rates: international**

Selected Countries — Numbers (thousands)/Rates per thousand

Year	Spain[11]	Sweden[3]	EU[12]	Russian Federation	Australia[13]	Canada[14]	New Zealand[15]	China[16]	India[17]	Japan[18]	USA[19]
Population (thousands)											
2001	40,721	8896	482,619	145,976	19,413	31,019	3881	1,271,850 [20]	1,034,931 [20]	127,149	285,040
2002	41,314	8925	483,847	145,306	19,651	31,354	3949	1,280,400 [20]	1,051,258 [20]	127,445	287,727
2003	42,005	8958	485,869	144,566	19,895	31,640	4027	1,288,400 [20]	1,068,065 [20]	127,718	290,211
2004	42,692	8994	488,065	143,821	20,127	31,941	4088	1,296,075 [20]	1,084,757 [20]	127,761	292,892
2005	43,398	9030	490,301	143,114	20,395	32,245	4134	1,303,720 [20]	1,101,318 [20]	127,773	295,561
2006	44,068	9081	492,279	142,487	20,698	32,576	4185	1,311,020 [20]	1,117,734 [20]	127,756	298,363
2007	44,874	9148	494,554	142,115	21,072	32,932	4228	1,324,655 [20]	1,134,023 [20]	127,772	301,290
2008	45,593	9220	496,780	141,956	21,499	33,327	4269	1,331,380 [20]	1,150,196 [20]	127,704	304,060
2009	45,929	9299	498,229 [P]	141,909	21,955 [P]	33,740 [P]	4,316	..	1,166,000 [20,P]	127,558	307,007 [P]
2010	46,073	9374 [P]	..	141,915 [J]	22,342 [P]	..	4,368 [P]	..	1,182,105 [20,P]	127,420	..
Population changes (per 1,000 per annum)											
2001-02	14.6	3.3	2.5	-4.6	12.3	10.8	17.5	6.7	15.8	2.3	9.4
2002-03	16.7	3.7	4.2	-5.1	12.4	9.1	19.8	6.2	16.0	2.1	8.6
2003-04	16.4	4.0	4.5	-5.2	11.7	9.5	15.1	6.0	15.6	0.3	9.2
2004-05	16.5	4.0	4.6	-4.9	13.3	9.5	11.3	5.9	15.3	0.1	9.1
2005-06	15.4	5.6	4.0	-4.4	14.9	10.3	12.3	5.6	14.9	-0.1	9.5
2006-07	18.3	7.4	4.6	-2.6	18.1	10.9	10.3	10.4	14.6	0.1	9.8
2007-08	16.0	7.9	4.5	-1.1	20.3	12.0	9.7	5.1	14.3	-0.5	9.2
2008-09	7.4	8.6	..	-0.3	21.2	12.4	11.0	..	13.7	-1.1	9.7
2009-10	3.1	8.1	..	..	..	..	12.0	..	13.8	-1.1	..
Live birth rate (per 1,000 population per annum)											
2001	10.0	10.3	10.4	9.0	12.7	10.8	14.4	13.4	25.4	9.2	14.1
2002	10.1	10.7	10.3	9.6	12.7	10.5	13.7	12.9	25.0	9.2	14.0
2003	10.5	11.1	10.3	10.2	12.6	10.6	13.9	12.4	24.8	8.9	14.1
2004	10.6	11.2	10.4	10.4	12.6	10.6	14.2	12.3	24.1	8.8	14.0
2005	10.7	11.2	10.4	10.2	12.7	10.6	14.0	12.4	23.8	8.4	14.0
2006	11.0	11.7	10.6	10.4	12.8	10.7	14.1	12.1	23.5	8.7	14.3
2007	11.0	11.7	10.6	11.3	13.5	11.0	15.1	12.0	23.1	8.6	14.3
2008	11.4	11.9	10.9	12.1	13.8	11.2	15.1	..	22.8	8.7	..
2009	10.7	12.0	10.7 [P]	12.4	13.6	11.3 [P]	14.5	..	..	8.5	..
Death rate (per 1,000 population per annum)											
2001	8.9	10.5	9.9	15.4	6.6	7.1	7.2	6.4	8.4	7.6	8.5
2002	8.9	10.6	9.9	16.1	6.8	7.1	7.1	6.4	8.1	7.8	8.5
2003	9.2	10.4	10.1	16.4	6.6	7.1	7.0	6.4	8.0	8.0	8.4
2004	8.7	10.1	9.6	16.0	6.6	7.1	7.0	6.4	7.5	8.1	8.2
2005	8.9	10.2	9.8	16.1	6.4	7.1	6.5	6.5	7.6	8.6	8.3
2006	8.4	10.0	9.6	15.2	6.5	7.0	6.7	6.8	7.5	8.6	8.1
2007	8.6	10.0	9.7	14.6	6.5	7.1	6.7	6.9	7.4	8.8	8.0
2008	8.6	9.9	9.7	14.6	6.7	7.2	6.8	..	7.4	9.1	..
2009	8.3	9.7	9.7 [P]	14.2	6.4	..	6.7	..	..	9.1	..

Table 1.2 **Mid Year Population: national**

Constituent countries of the United Kingdom — Numbers (thousands) and percentage age distribution

Mid-year	United Kingdom	Great Britain	England and Wales	England	Wales	Scotland	Northern Ireland
Estimates							
1971	55,928	54,388	49,152	46,412	2,740	5,236	1,540
1976	56,216	54,693	49,459	46,660	2,799	5,233	1,524
1981	56,357	54,815	49,634	46,821	2,813	5,180	1,543
1986	56,684	55,110	49,999	47,188	2,811	5,112	1,574
1991	57,439	55,831	50,748	47,875	2,873	5,083	1,607
1992	57,585	55,961	50,876	47,998	2,878	5,086	1,623
1993	57,714	56,078	50,986	48,102	2,884	5,092	1,636
1994	57,862	56,218	51,116	48,229	2,887	5,102	1,644
1995	58,025	56,376	51,272	48,383	2,889	5,104	1,649
1996	58,164	56,503	51,410	48,519	2,891	5,092	1,662
1997	58,314	56,643	51,560	48,665	2,895	5,083	1,671
1998	58,475	56,797	51,720	48,821	2,900	5,077	1,678
1999	58,684	57,005	51,933	49,033	2,901	5,072	1,679
2000	58,886	57,203	52,140	49,233	2,907	5,063	1,683
2001	59,113	57,424	52,360	49,450	2,910	5,064	1,689
2002	59,319	57,622	52,567	49,649	2,918	5,055	1,697
2003	59,552	57,850	52,792	49,863	2,929	5,057	1,703
2004	59,842	58,132	53,053	50,110	2,943	5,078	1,710
2005	60,235	58,511	53,416	50,466	2,950	5,095	1,724
2006	60,584	58,843	53,726	50,764	2,962	5,117	1,742
2007	60,986	59,227	54,082	51,106	2,976	5,144	1,759
2008	61,398	59,623	54,455	51,465	2,990	5,169	1,775
2009	61,792	60,003	54,809	51,810	2,999	5,194	1,789
2009 by age group (percentages)							
0–4	6.1	6.1	6.1	6.2	5.7	5.6	6.8
5–15	12.6	12.5	12.6	12.6	12.6	12.0	14.5
16–44	39.6	39.6	39.6	39.8	37.0	38.8	40.6
45–64M/59F	22.3	22.3	22.2	22.1	23.0	23.8	21.1
65M/60F–74	11.6	11.7	11.6	11.5	13.0	12.2	10.4
75 and over	7.8	7.9	7.9	7.8	8.6	7.7	6.4
Projections[1]							
2011	62,649	60,834	55,601	52,577	3,024	5,233	1,815
2016	64,773	62,900	57,576	54,472	3,104	5,324	1,874
2021	66,958	65,031	59,620	56,433	3,187	5,411	1,927
2026	69,051	67,080	61,597	58,334	3,263	5,483	1,971
2031	70,933	68,929	63,397	60,071	3,326	5,532	2,005
2031 by age group (percentages)							
0–4	5.6	5.6	5.6	5.7	5.2	4.9	5.6
5–15	12.4	12.4	12.5	12.5	12.1	11.5	13.3
16–44	36.4	36.4	36.5	36.7	34.2	34.6	35.4
45–65[2]	24.5	24.5	24.4	24.4	24.4	25.7	25.3
66–74[2]	9.4	9.4	9.3	9.2	10.4	10.9	9.6
75 and over	11.7	11.7	11.7	11.6	13.6	12.5	10.9

Note: This table includes the revised mid-2002 to mid-2008 population estimates which were published on 13 May 2010.
Figures for constituent countries may not sum to United Kingdom, Great Britain and England and Wales totals due to rounding.

1 National projections based on mid-2008 population estimates.

2 Based on current laws, between 2010 and 2020, state pension age will change from 65 years for men and 60 years for women to 65 years for both sexes, while between 2026 and 2046, state pension age will increase from 65 years to 68 years for both men and women.

Sources: Office for National Statistics, General Register Office for Scotland, Northern Ireland Statistics and Research Agency.

Table 1.3 **Population: subnational**

Government Office Regions of England

Numbers (thousands) and percentage age distribution

Mid-year	North East	North West	Yorkshire and The Humber	East Midlands	West Midlands	East	London	South East	South West
Estimates									
1971	2,679	7,108	4,902	3,652	5,146	4,454	7,529	6,830	4,112
1976	2,671	7,043	4,924	3,774	5,178	4,672	7,089	7,029	4,280
1981	2,636	6,940	4,918	3,853	5,187	4,854	6,806	7,245	4,381
1986	2,594	6,833	4,884	3,908	5,180	4,999	6,774	7,468	4,548
1991	2,587	6,843	4,936	4,011	5,230	5,121	6,829	7,629	4,688
1992	2,591	6,841	4,949	4,037	5,237	5,143	6,829	7,657	4,714
1993	2,594	6,847	4,954	4,056	5,246	5,154	6,844	7,673	4,734
1994	2,589	6,839	4,960	4,072	5,249	5,178	6,874	7,712	4,757
1995	2,583	6,828	4,961	4,092	5,257	5,206	6,913	7,763	4,782
1996	2,576	6,810	4,961	4,108	5,263	5,233	6,974	7,800	4,793
1997	2,568	6,794	4,958	4,120	5,262	5,267	7,015	7,853	4,827
1998	2,561	6,792	4,958	4,133	5,271	5,302	7,065	7,889	4,849
1999	2,550	6,773	4,956	4,152	5,272	5,339	7,154	7,955	4,881
2000	2,543	6,774	4,959	4,168	5,270	5,375	7,237	7,991	4,917
2001	2,540	6,773	4,977	4,190	5,281	5,400	7,322	8,023	4,943
2002	2,540	6,777	5,002	4,222	5,294	5,430	7,369	8,043	4,972
2003	2,540	6,799	5,029	4,254	5,310	5,468	7,380	8,080	5,003
2004	2,541	6,819	5,067	4,292	5,324	5,500	7,413	8,115	5,040
2005	2,548	6,839	5,111	4,327	5,347	5,551	7,485	8,173	5,085
2006	2,553	6,852	5,146	4,363	5,362	5,593	7,547	8,224	5,124
2007	2,560	6,864	5,182	4,397	5,378	5,649	7,602	8,296	5,178
2008	2,571	6,874	5,217	4,429	5,408	5,717	7,668	8,369	5,210
2009	2,584	6,898	5,258	4,451	5,431	5,767	7,754	8,436	5,231
2009 by age group (percentages)									
0–4	5.7	6.1	6.0	5.8	6.3	6.1	7.3	6.0	5.4
5–15	12.1	12.7	12.5	12.5	13.1	12.9	12.0	12.9	12.2
16–44	38.5	38.9	40.1	38.7	38.5	37.9	47.9	38.1	36.4
45–64M/59F	23.5	22.6	22.1	22.9	22.1	22.6	19.0	22.8	23.1
65M/60F–74	12.2	11.9	11.6	12.2	12.0	12.2	8.1	11.8	13.3
75 and over	8.1	7.7	7.7	7.9	8.0	8.3	5.6	8.4	9.6
Projections[1]									
2008	2,571	6,874	5,217	4,429	5,408	5,717	7,668	8,369	5,210
2013	2,622	6,989	5,439	4,611	5,543	6,000	8,007	8,696	5,426
2018	2,676	7,116	5,662	4,798	5,689	6,291	8,338	9,034	5,647
2023	2,733	7,250	5,887	4,990	5,842	6,587	8,646	9,391	5,882
2028	2,786	7,370	6,103	5,173	5,986	6,863	8,923	9,734	6,114
2033	2,830	7,472	6,296	5,334	6,113	7,114	9,188	10,047	6,321
2033 by age group (percentages)									
0–4	5.2	5.5	5.5	5.3	5.9	5.4	6.7	5.4	5.0
5–15	11.9	12.5	12.3	12.2	13.1	12.4	12.5	12.4	11.7
16–44	35.6	35.8	37.7	34.8	35.4	34.0	44.1	34.1	33.2
45–65[2]	24.1	23.9	23.9	24.7	23.6	25.2	23.4	25.0	24.5
66–74[2]	10.4	10.0	9.3	10.3	9.6	10.0	6.5	10.0	11.0
75 and over	12.8	12.2	11.4	12.8	12.4	12.9	6.9	13.1	14.7

Note: This table includes the revised mid-2002 to mid-2008 population estimates which were published on 13 May 2010.
Figures may not sum to England totals due to rounding.

1 These projections are based on the 2008 population estimates and are consistent with the 2008-based national projections produced by the Office for National Statistics.

2 Based on current laws, between 2010 and 2020, state pension age will change from 65 years for men and 60 years for women to 65 years for both sexes, while between 2026 and 2046, state pension age will increase from 65 years to 68 years for both men and women.

Source: Office for National Statistics

Table 1.4 Population: age and sex

Constituent countries of the United Kingdom

Numbers (thousands)

Mid-year	All ages	Age group												Under 16	16–64M/59F[1]	65M/60F[1] and over
		Under 1	1–4	5–14	15–24	25–34	35–44	45–59	60–64	65–74	75–84	85–89	90 and over			
United Kingdom																
Persons																
1981	56,357	730	2,726	8,147	9,019	8,010	6,774	9,540	2,935	5,195	2,677	..	..	12,543	33,780	10,035
1986	56,684	748	2,886	7,143	9,200	8,007	7,711	9,212	3,069	5,020	2,971	716	..	11,645	34,725	10,313
1991	57,439	790	3,077	7,141	8,168	8,898	7,918	9,500	2,888	5,067	3,119	626	248	11,685	35,197	10,557
1996	58,164	719	3,019	7,544	7,231	9,131	7,958	10,553	2,785	5,066	3,129	711	317	12,018	35,498	10,649
2001	59,113	663	2,819	7,624	7,261	8,475	8,846	11,168	2,884	4,947	3,296	753	377	11,863	36,406	10,845
2002	59,319	661	2,752	7,602	7,404	8,261	9,003	11,306	2,892	4,967	3,344	738	388	11,783	36,620	10,915
2003	59,552	680	2,704	7,544	7,579	8,078	9,105	11,410	2,949	5,000	3,399	706	399	11,716	36,824	11,012
2004	59,842	705	2,685	7,473	7,745	7,948	9,185	11,506	3,027	5,028	3,431	702	409	11,641	37,083	11,118
2005	60,235	716	2,712	7,370	7,891	7,931	9,245	11,616	3,114	5,046	3,420	755	419	11,585	37,419	11,232
2006	60,584	732	2,764	7,238	8,026	7,892	9,260	11,744	3,240	5,029	3,416	820	423	11,533	37,708	11,344
2007	60,986	756	2,838	7,126	8,161	7,864	9,246	11,730	3,485	5,058	3,424	873	425	11,507	37,916	11,563
2008	61,398	788	2,912	7,051	8,220	7,907	9,149	11,797	3,641	5,157	3,441	918	417	11,514	38,090	11,794
2009	61,792	784	2,994	7,017	8,220	7,993	9,012	11,946	3,719	5,279	3,458	933	437	11,549	38,236	12,007
Males																
1981	27,412	374	1,400	4,184	4,596	4,035	3,409	4,711	1,376	2,264	922	..	..	6,439	17,646	3,327
1986	27,542	384	1,478	3,664	4,663	4,022	3,864	4,572	1,463	2,206	1,060	166	..	5,968	18,142	3,432
1991	27,909	403	1,572	3,655	4,146	4,432	3,949	4,732	1,390	2,272	1,146	166	46	5,976	18,303	3,630
1996	28,287	369	1,547	3,857	3,652	4,540	3,954	5,244	1,360	2,311	1,187	201	65	6,148	18,375	3,764
2001	28,832	338	1,445	3,906	3,672	4,215	4,382	5,534	1,412	2,308	1,308	227	85	6,077	18,827	3,928
2002	28,961	338	1,407	3,896	3,760	4,113	4,461	5,593	1,414	2,325	1,338	226	89	6,036	18,947	3,978
2003	29,104	349	1,383	3,867	3,858	4,022	4,513	5,644	1,440	2,346	1,369	219	94	6,004	19,072	4,028
2004	29,274	362	1,376	3,831	3,956	3,959	4,545	5,690	1,479	2,365	1,392	223	98	5,969	19,227	4,078
2005	29,493	367	1,389	3,780	4,031	3,951	4,580	5,744	1,523	2,380	1,400	247	103	5,939	19,424	4,130
2006	29,689	374	1,416	3,707	4,110	3,939	4,584	5,803	1,585	2,379	1,413	273	106	5,909	19,609	4,171
2007	29,918	388	1,454	3,646	4,195	3,938	4,575	5,785	1,703	2,398	1,432	295	108	5,893	19,792	4,233
2008	30,154	403	1,492	3,607	4,216	3,986	4,533	5,814	1,780	2,449	1,452	313	108	5,894	19,938	4,323
2009	30,374	402	1,533	3,591	4,211	4,047	4,466	5,884	1,818	2,511	1,472	320	119	5,912	20,040	4,422
Females																
1981	28,946	356	1,327	3,963	4,423	3,975	3,365	4,829	1,559	2,931	1,756	..	..	6,104	16,134	6,708
1986	29,142	364	1,408	3,480	4,538	3,985	3,847	4,639	1,606	2,814	1,911	550	..	5,678	16,583	6,881
1991	29,530	387	1,505	3,487	4,021	4,466	3,968	4,769	1,498	2,795	1,972	460	202	5,709	16,894	6,927
1996	29,877	350	1,472	3,687	3,579	4,591	4,005	5,309	1,426	2,755	1,942	509	252	5,870	17,123	6,885
2001	30,281	324	1,375	3,718	3,589	4,260	4,465	5,634	1,473	2,640	1,987	526	292	5,786	17,579	6,917
2002	30,358	323	1,345	3,706	3,644	4,149	4,542	5,713	1,478	2,642	2,006	513	299	5,748	17,673	6,937
2003	30,448	331	1,321	3,677	3,721	4,056	4,592	5,766	1,509	2,654	2,029	487	305	5,712	17,751	6,984
2004	30,568	343	1,309	3,641	3,789	3,990	4,640	5,816	1,548	2,663	2,040	479	310	5,673	17,855	7,040
2005	30,742	349	1,323	3,590	3,860	3,981	4,665	5,872	1,591	2,666	2,020	509	316	5,645	17,995	7,102
2006	30,895	357	1,349	3,531	3,916	3,953	4,676	5,941	1,656	2,650	2,003	547	317	5,624	18,099	7,172
2007	31,068	368	1,383	3,480	3,966	3,926	4,671	5,945	1,782	2,660	1,992	578	317	5,614	18,124	7,330
2008	31,244	385	1,420	3,444	4,004	3,921	4,616	5,983	1,861	2,708	1,988	605	309	5,620	18,153	7,472
2009	31,418	383	1,462	3,426	4,010	3,946	4,546	6,061	1,901	2,768	1,986	612	318	5,637	18,196	7,585
England and Wales																
Persons																
1981	49,634	634	2,372	7,085	7,873	7,086	5,996	8,433	2,607	4,619	2,388	383	157	10,910	29,796	8,928
1986	49,999	654	2,522	6,226	8,061	7,052	6,856	8,136	2,725	4,470	2,655	461	182	10,161	30,647	9,190
1991	50,748	698	2,713	6,248	7,165	7,862	7,022	8,407	2,553	4,506	2,790	561	223	10,247	31,100	9,400
1996	51,410	637	2,668	6,636	6,336	8,076	7,017	9,363	2,457	4,496	2,801	639	285	10,584	31,353	9,474
2001	52,360	589	2,502	6,740	6,387	7,536	7,816	9,898	2,549	4,377	2,947	677	340	10,495	32,226	9,639
2002	52,567	588	2,444	6,727	6,521	7,354	7,964	10,016	2,555	4,394	2,989	664	351	10,435	32,433	9,699
2003	52,792	607	2,403	6,680	6,685	7,198	8,059	10,102	2,606	4,422	3,037	634	361	10,385	32,623	9,784
2004	53,053	629	2,388	6,616	6,842	7,084	8,133	10,176	2,675	4,445	3,063	632	370	10,323	32,856	9,875
2005	53,416	639	2,414	6,525	6,979	7,073	8,193	10,264	2,757	4,461	3,052	680	378	10,274	33,164	9,978
2006	53,726	653	2,462	6,408	7,101	7,036	8,212	10,369	2,874	4,444	3,045	740	382	10,231	33,418	10,077
2007	54,082	675	2,528	6,311	7,224	7,003	8,207	10,349	3,094	4,469	3,050	787	385	10,210	33,600	10,272
2008	54,455	703	2,595	6,247	7,279	7,038	8,126	10,402	3,238	4,558	3,063	829	378	10,219	33,754	10,482
2009	54,809	699	2,668	6,221	7,278	7,109	8,011	10,533	3,307	4,669	3,077	841	396	10,255	33,882	10,672
Males																
1981	24,160	324	1,218	3,639	4,011	3,569	3,024	4,178	1,227	2,020	825	94	32	5,601	15,589	2,970
1986	24,311	335	1,292	3,194	4,083	3,542	3,438	4,053	1,302	1,972	951	115	35	5,208	16,031	3,072
1991	24,681	356	1,385	3,198	3,638	3,920	3,504	4,199	1,234	2,027	1,029	150	42	5,240	16,193	3,248
1996	25,030	327	1,368	3,393	3,202	4,020	3,489	4,659	1,205	2,059	1,067	182	59	5,416	16,247	3,367
2001	25,574	301	1,281	3,453	3,231	3,758	3,881	4,907	1,252	2,052	1,175	206	77	5,376	16,688	3,510
2002	25,700	301	1,249	3,448	3,312	2,670	3,956	4,957	1,253	2,066	1,202	204	81	5,345	16,802	3,554
2003	25,837	312	1,229	3,424	3,402	3,592	4,006	5,000	1,276	2,084	1,229	198	85	5,322	16,918	3,597
2004	25,991	323	1,224	3,393	3,496	3,536	4,035	5,036	1,310	2,100	1,248	202	89	5,293	17,058	3,640
2005	26,193	327	1,236	3,347	3,566	3,529	4,071	5,080	1,351	2,113	1,256	224	94	5,268	17,239	3,685
2006	26,366	334	1,261	3,282	3,638	3,515	4,077	5,129	1,408	2,111	1,267	248	96	5,243	17,402	3,722
2007	26,570	346	1,296	3,229	3,716	3,511	4,074	5,109	1,513	2,127	1,283	268	99	5,229	17,566	3,776
2008	26,783	360	1,329	3,195	3,736	3,552	4,039	5,133	1,584	2,172	1,300	285	99	5,231	17,696	3,856
2009	26,980	358	1,366	3,183	3,729	3,604	3,982	5,196	1,617	2,228	1,318	290	109	5,249	17,786	3,945
Females																
1981	25,474	310	1,154	3,446	3,863	3,517	2,972	4,255	1,380	2,599	1,564	289	126	5,309	14,207	5,958
1986	25,687	319	1,231	3,032	3,978	3,509	3,418	4,083	1,422	2,498	1,704	346	148	4,953	14,616	6,118
1991	26,067	342	1,328	3,050	3,527	3,943	3,517	4,208	1,319	2,479	1,761	411	181	5,007	14,908	6,152
1996	26,381	310	1,300	3,243	3,134	4,056	3,528	4,704	1,252	2,437	1,734	457	227	5,168	15,106	6,107
2001	26,786	288	1,220	3,287	3,156	3,778	3,935	4,992	1,297	2,326	1,771	471	263	5,119	15,538	6,129
2002	26,867	287	1,195	3,279	3,209	3,684	4,007	5,059	1,302	2,328	1,787	460	270	5,090	15,631	6,146
2003	26,955	295	1,174	3,256	3,283	3,606	4,053	5,102	1,330	2,338	1,808	436	275	5,063	15,705	6,187
2004	27,062	306	1,164	3,223	3,346	3,549	4,098	5,141	1,365	2,345	1,815	430	280	5,029	15,798	6,235
2005	27,224	312	1,178	3,179	3,413	3,545	4,122	5,184	1,406	2,348	1,796	457	285	5,006	15,925	6,292
2006	27,359	319	1,201	3,126	3,463	3,521	4,134	5,240	1,466	2,333	1,778	492	286	4,989	16,015	6,356
2007	27,512	329	1,233	3,082	3,508	3,492	4,132	5,240	1,581	2,342	1,767	520	286	4,982	16,034	6,497
2008	27,672	343	1,266	3,052	3,543	3,486	4,087	5,269	1,654	2,386	1,762	544	279	4,989	16,058	6,626
2009	27,829	341	1,303	3,038	3,548	3,506	4,029	5,337	1,689	2,441	1,759	550	288	5,006	16,096	6,727

Note: This table includes the revised mid-2002 to mid-2008 population estimates which were published on 13 May 2010. Figures may not sum due to rounding.

1 Based on current laws, between 2010 and 2020, state pension age will change from 65 years for men and 60 years for women to 65 years for both sexes, while between 2026 and 2046, state pension age will increase from 65 years to 68 years for both men and women.

Sources: Office for National Statistics, General Register Office for Scotland, Northern Ireland Statistics and Research Agency.

Table 1.4 continued **Population: age and sex**

Constituent countries of the United Kingdom

Numbers (thousands)

Mid-year	All ages	Age group														
		Under 1	1–4	5–14	15–24	25–34	35–44	45–59	60–64	65–74	75–84	85–89	90 and over	Under 16	16–64M/59F[1]	65M/60F[1] and over
England																
Persons																
1981	46,821	598	2,235	6,678	7,440	6,703	5,663	7,948	2,449	4,347	2,249	362	149	10,285	28,133	8,403
1986	47,188	618	2,380	5,869	7,623	6,682	6,478	7,672	2,559	4,199	2,501	435	172	9,583	28,962	8,643
1991	47,875	660	2,560	5,885	6,772	7,460	6,633	7,920	2,399	4,222	2,626	529	210	9,658	29,390	8,827
1996	48,519	603	2,523	6,255	5,985	7,667	6,638	8,822	2,310	4,217	2,631	602	269	9,985	29,639	8,895
2001	49,450	558	2,366	6,359	6,032	7,171	7,407	9,327	2,395	4,113	2,764	638	321	9,908	30,487	9,055
2002	49,649	558	2,312	6,347	6,157	7,000	7,550	9,438	2,399	4,129	2,803	625	331	9,854	30,685	9,110
2003	49,863	576	2,274	6,303	6,311	6,853	7,642	9,520	2,445	4,155	2,850	596	340	9,808	30,866	9,188
2004	50,110	597	2,261	6,243	6,459	6,746	7,713	9,590	2,509	4,175	2,876	593	349	9,751	31,085	9,273
2005	50,466	607	2,288	6,158	6,591	6,738	7,772	9,675	2,586	4,190	2,865	638	357	9,709	31,387	9,370
2006	50,764	620	2,335	6,048	6,705	6,704	7,791	9,777	2,697	4,171	2,860	695	360	9,670	31,631	9,463
2007	51,106	641	2,398	5,958	6,819	6,674	7,789	9,760	2,906	4,193	2,866	739	363	9,654	31,807	9,646
2008	51,465	667	2,462	5,901	6,870	6,707	7,715	9,813	3,041	4,276	2,878	779	356	9,666	31,956	9,842
2009	51,810	664	2,532	5,880	6,866	6,775	7,611	9,941	3,107	4,380	2,892	790	373	9,704	32,083	10,022
Males																
1981	22,795	306	1,147	3,430	3,790	3,377	2,856	3,938	1,154	1,902	777	89	30	5,280	14,717	2,798
1986	22,949	317	1,219	3,010	3,862	3,357	3,249	3,822	1,224	1,853	897	108	33	4,911	15,147	2,891
1991	23,291	336	1,307	3,011	3,439	3,721	3,311	3,957	1,159	1,900	970	141	39	4,938	15,302	3,050
1996	23,629	309	1,294	3,198	3,023	3,818	3,302	4,390	1,133	1,932	1,003	172	55	5,110	15,358	3,161
2001	24,166	285	1,212	3,257	3,053	3,580	3,681	4,624	1,176	1,928	1,103	194	73	5,075	15,793	3,298
2002	24,287	286	1,181	3,252	3,129	3,498	3,754	4,672	1,176	1,941	1,128	193	77	5,046	15,903	3,338
2003	24,415	296	1,163	3,231	3,213	3,423	3,802	4,713	1,197	1,958	1,154	186	80	5,026	16,011	3,378
2004	24,561	306	1,159	3,201	3,301	3,369	3,830	4,747	1,228	1,972	1,172	190	84	5,000	16,142	3,419
2005	24,756	310	1,171	3,158	3,368	3,363	3,866	4,790	1,267	1,983	1,179	210	88	4,977	16,317	3,461
2006	24,924	317	1,196	3,098	3,436	3,351	3,873	4,839	1,321	1,981	1,190	233	91	4,955	16,475	3,494
2007	25,119	329	1,229	3,048	3,509	3,348	3,871	4,820	1,421	1,995	1,205	251	93	4,943	16,631	3,544
2008	25,323	342	1,261	3,018	3,526	3,387	3,839	4,844	1,487	2,036	1,222	268	93	4,947	16,757	3,619
2009	25,515	340	1,296	3,008	3,518	3,436	3,787	4,907	1,519	2,089	1,239	273	102	4,966	16,845	3,703
Females																
1981	24,026	292	1,088	3,248	3,650	3,327	2,807	4,009	1,295	2,445	1,472	273	119	5,004	13,416	5,605
1986	24,239	301	1,161	2,859	3,761	3,325	3,229	3,850	1,335	2,346	1,604	326	140	4,672	13,815	5,752
1991	24,584	324	1,253	2,873	3,333	3,739	3,322	3,964	1,239	2,323	1,656	388	171	4,720	14,088	5,777
1996	24,890	293	1,229	3,056	2,961	3,849	3,336	4,432	1,177	2,286	1,628	430	214	4,876	14,281	5,734
2001	25,284	273	1,154	3,102	2,979	3,591	3,726	4,702	1,219	2,185	1,661	444	248	4,834	14,694	5,757
2002	25,362	273	1,131	3,094	3,028	3,502	3,796	4,766	1,222	2,187	1,675	433	254	4,807	14,783	5,772
2003	25,448	280	1,111	3,072	3,098	3,430	3,839	4,807	1,248	2,197	1,696	410	260	4,782	14,856	5,810
2004	25,549	291	1,103	3,042	3,158	3,376	3,882	4,843	1,281	2,204	1,703	403	264	4,752	14,943	5,855
2005	25,710	296	1,116	3,000	3,223	3,375	3,906	4,885	1,319	2,206	1,686	428	269	4,731	15,070	5,909
2006	25,840	303	1,139	2,950	3,269	3,353	3,918	4,939	1,376	2,191	1,670	461	270	4,716	15,156	5,968
2007	25,987	312	1,170	2,910	3,311	3,326	3,918	4,939	1,485	2,198	1,660	488	270	4,711	15,175	6,101
2008	26,141	326	1,202	2,883	3,344	3,320	3,876	4,969	1,554	2,239	1,656	511	263	4,719	15,199	6,223
2009	26,295	324	1,236	2,872	3,348	3,339	3,823	5,034	1,588	2,291	1,653	517	271	4,738	15,238	6,319
Wales																
Persons																
1981	2,813	36	136	407	434	383	333	485	158	272	139	21	8	626	1,663	525
1986	2,811	37	143	357	438	369	378	464	166	271	154	26	10	578	1,686	547
1991	2,873	38	153	363	393	402	389	486	154	284	164	32	13	589	1,711	573
1996	2,891	34	146	381	352	409	379	541	147	279	170	37	17	598	1,714	578
2001	2,910	32	136	382	356	365	409	572	154	264	183	39	20	587	1,739	584
2002	2,918	30	132	380	364	354	414	578	156	265	185	39	20	582	1,748	589
2003	2,929	31	129	377	374	345	417	582	161	268	187	38	21	577	1,757	595
2004	2,943	32	127	373	383	339	421	586	166	270	188	39	21	572	1,770	602
2005	2,950	32	126	367	388	336	421	588	171	271	186	42	21	566	1,777	608
2006	2,962	33	127	360	396	332	420	592	177	272	186	45	22	561	1,786	615
2007	2,976	34	130	353	405	329	417	589	188	276	185	48	22	556	1,793	627
2008	2,990	36	133	346	410	330	411	589	197	282	185	50	22	553	1,798	639
2009	2,999	35	136	341	412	334	400	592	200	289	185	51	23	550	1,799	650
Males																
1981	1,365	18	70	209	221	193	168	240	73	118	48	5	2	321	871	173
1986	1,362	19	73	184	221	186	190	231	79	119	54	7	2	297	885	181
1991	1,391	20	78	186	199	199	194	242	74	128	60	8	2	302	891	198
1996	1,401	17	74	195	179	203	187	269	72	128	64	10	3	306	890	206
2001	1,409	16	69	196	179	178	200	283	75	124	73	12	4	301	895	212
2002	1,413	16	68	195	183	172	202	285	77	125	74	12	5	299	899	215
2003	1,422	16	66	194	190	168	204	287	79	127	75	11	5	296	907	218
2004	1,431	16	66	191	195	166	205	288	82	128	76	12	5	294	916	221
2005	1,437	17	65	188	198	166	205	289	84	129	76	13	5	291	922	224
2006	1,442	17	65	185	202	164	204	291	87	130	77	15	5	288	927	227
2007	1,451	17	67	181	208	163	203	289	93	132	78	16	6	286	935	231
2008	1,459	18	68	178	210	165	200	288	97	135	78	17	6	284	939	236
2009	1,466	18	70	175	211	167	195	289	98	139	79	17	6	282	941	242
Females																
1981	1,448	18	66	199	213	190	165	246	85	154	91	16	6	305	791	352
1986	1,449	18	70	173	217	184	188	233	87	152	100	20	8	282	801	366
1991	1,482	19	75	177	194	203	195	244	80	156	104	24	10	288	820	375
1996	1,490	16	71	186	173	206	192	272	75	151	106	27	13	293	825	373
2001	1,502	15	66	186	177	187	209	289	78	141	110	27	15	286	844	372
2002	1,505	15	65	185	181	182	212	293	80	140	111	27	16	283	848	374
2003	1,507	15	63	183	184	176	214	295	82	141	112	27	16	280	850	377
2004	1,513	15	62	182	188	172	216	298	85	142	112	26	16	278	855	380
2005	1,513	16	61	179	190	170	216	299	87	142	110	28	16	275	855	383
2006	1,520	16	62	176	194	168	216	301	90	143	108	30	16	273	859	387
2007	1,525	16	63	172	197	166	215	300	96	144	107	32	16	271	858	395
2008	1,531	17	65	168	200	166	211	301	100	147	107	33	16	269	859	403
2009	1,534	17	66	166	201	167	206	303	102	150	106	34	17	268	858	408

1 Based on current laws, between 2010 and 2020, state pension age will change from 65 years for men and 60 years for women to 65 years for both sexes, while between 2026 and 2046, state pension age will increase from 65 years to 68 years for both men and women.

Table 1.4 continued **Population: age and sex**

Constituent countries of the United Kingdom

Numbers (thousands)

Mid-year	All ages	Age group														
		Under 1	1–4	5–14	15–24	25–34	35–44	45–59	60–64	65–74	75–84	85–89	90 and over	Under 16	16–64M/59F[1]	65M/60F[1] and over
Scotland																
Persons																
1981	5,180	69	249	780	875	724	603	880	260	460	232	35	14	1,188	3,110	882
1986	5,112	66	257	656	863	739	665	849	273	435	252	42	15	1,061	3,161	890
1991	5,083	66	258	634	746	795	696	853	265	441	259	51	19	1,021	3,151	912
1996	5,092	59	252	643	651	798	722	925	259	448	256	57	24	1,019	3,151	922
2001	5,064	52	224	629	633	696	782	979	262	447	272	59	29	970	3,150	944
2002	5,055	51	217	622	639	669	788	993	262	449	276	58	30	955	3,150	950
2003	5,057	52	212	614	648	648	793	1,008	265	452	281	55	31	943	3,156	958
2004	5,078	54	210	609	653	635	796	1,025	270	455	286	54	31	935	3,175	968
2005	5,095	55	211	600	659	629	794	1,042	273	457	286	59	32	929	3,191	975
2006	5,117	55	213	588	668	627	790	1,058	280	456	287	63	32	922	3,213	983
2007	5,144	57	218	576	676	629	781	1,060	301	457	290	67	32	917	3,227	1,001
2008	5,169	60	223	567	681	634	766	1,068	312	463	293	69	31	914	3,238	1,017
2009	5,194	60	229	561	685	645	746	1,079	320	470	295	72	32	912	3,249	1,033
Males																
1981	2,495	35	128	400	445	364	298	424	118	194	77	8	3	610	1,603	282
1986	2,462	34	131	336	438	371	351	410	127	184	86	10	3	543	1,636	283
1991	2,445	34	132	324	377	394	345	415	124	192	91	13	3	522	1,623	299
1996	2,447	30	128	328	327	392	355	454	122	198	93	15	5	521	1,616	310
2001	2,434	26	115	322	319	337	379	483	125	200	103	17	6	497	1,610	327
2002	2,432	26	111	319	324	325	382	490	125	202	106	17	7	489	1,612	331
2003	2,435	26	108	314	329	315	383	496	126	204	108	16	7	483	1,616	336
2004	2,446	28	107	312	332	310	384	503	129	207	111	16	7	479	1,627	341
2005	2,456	28	107	307	335	309	382	511	131	208	112	18	7	476	1,635	345
2006	2,469	28	109	301	340	310	380	517	135	208	113	20	8	472	1,649	349
2007	2,486	29	112	295	345	313	375	517	146	210	116	21	8	469	1,662	354
2008	2,500	30	115	290	348	317	368	520	152	213	118	22	8	468	1,672	361
2009	2,515	31	118	287	350	324	358	524	156	217	120	23	8	467	1,680	368
Females																
1981	2,685	33	121	380	430	359	305	456	142	265	155	27	11	579	1,506	600
1986	2,649	32	126	320	424	368	334	439	146	250	166	32	12	518	1,525	606
1991	2,639	32	126	309	369	402	351	437	141	249	168	38	16	499	1,528	612
1996	2,645	28	123	315	324	406	367	470	137	250	164	42	20	498	1,535	612
2001	2,630	26	109	307	314	359	403	496	137	246	169	43	23	473	1,540	617
2002	2,623	25	106	303	315	344	406	504	137	247	171	41	23	466	1,538	619
2003	2,623	25	104	300	318	332	410	512	139	248	173	39	24	460	1,540	622
2004	2,632	26	103	297	321	325	412	521	141	248	175	38	24	457	1,549	627
2005	2,639	26	103	293	324	320	411	531	142	249	174	41	25	454	1,556	630
2006	2,648	27	104	287	328	317	410	540	145	247	174	43	25	450	1,564	634
2007	2,659	28	106	281	332	316	406	542	155	247	174	45	24	448	1,564	646
2008	2,668	29	109	277	334	317	398	548	160	250	175	47	24	446	1,566	656
2009	2,679	29	112	274	335	321	388	556	164	253	175	49	24	445	1,569	664
Northern Ireland																
Persons																
1981	1,543	27	106	282	271	200	175	227	68	116	57	..	..	444	874	224
1986	1,574	28	107	261	277	217	190	227	71	115	64	16	..	423	917	234
1991	1,607	26	106	260	256	240	200	241	70	121	69	14	6	417	945	246
1996	1,662	24	99	266	244	257	220	266	70	123	72	15	7	415	993	253
2001	1,689	22	93	255	240	243	248	290	74	123	77	16	7	397	1,030	262
2002	1,697	22	91	253	243	238	251	296	75	125	79	16	7	393	1,037	266
2003	1,703	22	89	251	246	233	254	301	78	126	81	16	8	388	1,044	271
2004	1,710	22	87	248	250	229	256	305	81	127	82	16	8	383	1,052	275
2005	1,724	23	88	245	253	228	257	310	84	128	83	17	8	381	1,064	280
2006	1,742	23	89	242	258	229	259	316	87	130	83	18	8	380	1,077	284
2007	1,759	24	91	239	260	231	259	321	90	132	84	19	8	380	1,089	290
2008	1,775	26	94	237	260	235	257	327	91	136	85	20	9	381	1,098	296
2009	1,789	26	97	235	258	239	255	333	92	140	86	20	9	382	1,105	302
Males																
1981	757	14	54	145	140	102	87	109	32	50	21	..	..	228	454	75
1986	768	14	55	134	142	109	95	110	33	50	23	4	..	217	474	77
1991	783	13	54	133	131	119	100	118	32	53	26	4	1	213	487	83
1996	810	12	51	136	124	128	109	131	33	54	27	4	1	212	511	87
2001	824	11	48	131	122	120	122	144	35	56	30	5	2	204	529	92
2002	829	11	47	130	124	117	123	147	36	56	31	5	2	202	534	94
2003	833	11	46	129	126	115	124	149	38	57	31	5	2	199	538	95
2004	836	11	45	127	128	113	125	151	39	58	32	5	2	197	542	97
2005	844	12	45	126	130	113	126	153	41	59	32	5	2	196	550	99
2006	853	12	46	124	132	113	127	156	42	60	33	6	2	195	558	101
2007	862	13	47	123	134	114	127	158	44	61	33	6	2	195	564	103
2008	871	13	48	121	133	117	127	161	44	63	34	6	2	196	569	106
2009	879	13	50	121	132	120	125	164	45	66	35	7	2	196	573	109
Females																
1981	786	13	52	137	130	98	88	118	37	66	37	..	..	216	420	150
1986	805	13	52	127	135	107	96	118	38	65	41	12	..	206	442	157
1991	824	13	52	127	125	121	100	123	38	67	44	10	4	203	458	163
1996	851	11	49	130	120	129	110	135	37	69	45	11	6	203	482	167
2001	865	10	45	124	119	123	126	146	38	68	47	11	6	193	501	170
2002	868	11	44	124	119	120	128	149	39	68	48	11	6	191	504	173
2003	870	10	43	122	120	118	129	152	40	68	49	11	6	189	506	175
2004	874	11	42	121	122	116	130	154	42	69	50	11	6	187	509	179
2005	880	11	43	119	124	115	131	157	43	69	50	11	6	186	514	181
2006	888	11	43	118	126	115	132	160	45	69	51	12	6	185	520	183
2007	897	12	44	116	127	117	132	163	46	70	51	13	6	185	526	187
2008	904	12	46	115	127	118	131	165	47	72	51	13	6	186	529	190
2009	910	12	47	114	126	120	129	169	47	74	51	13	6	186	532	193

1 Based on current laws, between 2010 and 2020, state pension age will change from 65 years for men and 60 years for women to 65 years for both sexes, while between 2026 and 2046, state pension age will increase from 65 years to 68 years for both men and women.

Table 1.5 Population: age, sex and legal marital status

England and Wales

Numbers (thousands)

Mid-year	Total population	Males					Females				
		Single	Married	Divorced	Widowed	Total	Single	Married	Divorced	Widowed	Total
Aged 16 and over											
1971	36,818	4,173	12,522	187	682	17,563	3,583	12,566	296	2,810	19,255
1976	37,486	4,369	12,511	376	686	17,941	3,597	12,538	533	2,877	19,545
1981	38,724	5,013	12,238	611	698	18,559	4,114	12,284	828	2,939	20,165
1986	39,837	5,625	11,867	917	695	19,103	4,617	12,000	1,165	2,953	20,734
1991	40,501	5,891	11,636	1,187	727	19,441	4,817	11,833	1,459	2,951	21,060
1996	40,827	6,225	11,310	1,346	733	19,614	5,168	11,433	1,730	2,881	21,212
2001	41,865	6,894	11,090	1,482	733	20,198	5,798	11,150	1,975	2,745	21,667
2002	42,132	7,062	11,040	1,524	729	20,355	5,944	11,093	2,030	2,709	21,777
2003	42,407	7,227	10,992	1,570	726	20,515	6,103	11,033	2,087	2,669	21,892
2004	42,731	7,420	10,939	1,617	722	20,698	6,280	10,981	2,144	2,628	22,033
2005	43,142	7,623	10,922	1,661	719	20,925	6,488	10,944	2,197	2,588	22,217
2006	43,495	7,834	10,879	1,694	716	21,124	6,686	10,894	2,243	2,548	22,371
2007	43,872	8,052	10,853	1,722	715	21,342	6,875	10,856	2,288	2,512	22,530
2008	44,235	8,240	10,854	1,744	714	21,552	7,063	10,818	2,325	2,477	22,683
2009	44,554	8,395	10,862	1,763	712	21,731	7,229	10,794	2,357	2,444	22,823
16–19											
1971	2,666	1,327	34	0	0	1,362	1,163	142	0	0	1,305
1976	2,901	1,454	28	0	0	1,482	1,289	129	0	0	1,419
1981	3,310	1,675	20	0	0	1,694	1,523	93	0	0	1,616
1986	3,131	1,587	10	0	0	1,596	1,484	49	1	0	1,535
1991	2,665	1,358	8	0	0	1,366	1,267	32	0	0	1,300
1996	2,402	1,209	6	0	0	1,216	1,164	21	0	0	1,186
2001	2,567	1,304	5	1	1	1,312	1,237	16	1	1	1,255
2002	2,632	1,352	5	1	1	1,358	1,259	13	1	1	1,274
2003	2,705	1,393	4	1	1	1,398	1,294	12	0	1	1,307
2004	2,773	1,424	3	0	0	1,428	1,333	11	0	0	1,345
2005	2,802	1,434	2	0	0	1,436	1,356	10	0	0	1,366
2006	2,829	1,457	2	0	0	1,459	1,363	7	0	0	1,370
2007	2,861	1,474	2	0	0	1,476	1,379	7	0	0	1,386
2008	2,858	1,468	2	0	0	1,470	1,382	7	0	0	1,389
2009	2,846	1,460	2	0	0	1,462	1,378	7	0	0	1,384
20–24											
1971	3,773	1,211	689	3	0	1,904	745	1,113	9	2	1,869
1976	3,395	1,167	557	4	0	1,728	725	925	16	2	1,667
1981	3,744	1,420	466	10	1	1,896	1,007	811	27	2	1,847
1986	4,171	1,768	317	14	0	2,099	1,383	657	32	1	2,072
1991	3,911	1,717	242	12	0	1,971	1,421	490	29	1	1,941
1996	3,291	1,538	117	3	0	1,658	1,361	260	11	1	1,633
2001	3,157	1,501	74	3	1	1,579	1,390	178	8	1	1,578
2002	3,214	1,531	73	3	1	1,607	1,427	170	8	1	1,607
2003	3,284	1,569	74	3	1	1,647	1,460	166	8	1	1,637
2004	3,379	1,634	75	3	1	1,714	1,493	163	8	2	1,666
2005	3,481	1,695	73	3	1	1,772	1,542	157	8	2	1,709
2006	3,564	1,743	67	3	1	1,814	1,595	147	7	1	1,750
2007	3,666	1,815	64	3	1	1,883	1,640	136	6	1	1,783
2008	3,746	1,856	61	2	1	1,920	1,693	127	6	1	1,827
2009	3,765	1,866	57	2	0	1,925	1,717	117	5	1	1,840
25–29											
1971	3,267	431	1,206	16	1	1,654	215	1,367	29	4	1,614
1976	3,758	533	1,326	39	2	1,900	267	1,522	65	5	1,859
1981	3,372	588	1,057	54	1	1,700	331	1,247	89	4	1,671
1986	3,713	835	949	79	1	1,863	527	1,207	113	4	1,850
1991	4,154	1,132	856	82	1	2,071	800	1,158	123	2	2,083
1996	3,950	1,273	650	46	1	1,970	977	906	93	3	1,980
2001	3,487	1,293	420	28	1	1,742	1,059	625	58	3	1,745
2002	3,363	1,277	384	26	1	1,687	1,048	573	52	3	1,676
2003	3,281	1,265	356	24	1	1,646	1,050	535	48	2	1,635
2004	3,278	1,277	339	23	1	1,640	1,077	512	46	2	1,638
2005	3,353	1,320	331	23	1	1,675	1,127	503	45	2	1,678
2006	3,433	1,371	324	22	1	1,718	1,178	490	45	2	1,715
2007	3,529	1,422	326	22	1	1,771	1,225	487	44	2	1,758
2008	3,622	1,486	329	21	1	1,838	1,262	479	42	2	1,785
2009	3,690	1,535	323	20	1	1,879	1,302	467	40	2	1,811

Note: Figures may not sum due to rounding.

1 2002-2008 figures were revised on the 30 November 2010

Source: Office for National Statistics

Table 1.5 continued

Population: age, sex and legal marital status

England and Wales

Numbers (thousands)

Mid-year	Total population	Males					Females				
		Single	Married	Divorced	Widowed	Total	Single	Married	Divorced	Widowed	Total
30–34											
1971	2,897	206	1,244	23	3	1,475	111	1,269	34	8	1,422
1976	3,220	236	1,338	55	3	1,632	118	1,388	75	8	1,588
1981	3,715	318	1,451	97	3	1,869	165	1,544	129	9	1,846
1986	3,338	355	1,197	124	2	1,679	206	1,293	154	6	1,660
1991	3,708	520	1,172	155	2	1,849	335	1,330	189	5	1,859
1996	4,126	776	1,135	138	2	2,050	551	1,316	201	7	2,076
2001	4,050	934	971	108	2	2,016	711	1,142	174	7	2,033
2002	3,991	951	926	103	2	1,983	739	1,097	166	6	2,008
2003	3,917	964	881	99	2	1,946	759	1,048	157	6	1,970
2004	3,807	966	833	94	2	1,896	767	992	147	5	1,911
2005	3,720	972	792	88	2	1,854	778	947	136	5	1,866
2006	3,603	971	743	81	2	1,797	782	895	124	5	1,806
2007	3,475	963	702	74	1	1,740	777	840	113	4	1,734
2008	3,415	966	678	68	1	1,714	787	805	105	4	1,701
2009	3,419	989	670	64	1	1,725	810	781	99	4	1,694
35–44											
1971	5,736	317	2,513	48	13	2,891	201	2,529	66	48	2,845
1976	5,608	286	2,442	104	12	2,843	167	2,427	129	42	2,765
1981	5,996	316	2,519	178	12	3,024	170	2,540	222	41	2,972
1986	6,856	396	2,738	293	12	3,438	213	2,815	350	39	3,418
1991	7,022	477	2,632	384	11	3,504	280	2,760	444	34	3,517
1996	7,017	653	2,426	398	12	3,489	427	2,568	497	36	3,528
2001	7,816	963	2,494	411	12	3,881	692	2,649	558	36	3,935
2002	7,964	1,027	2,498	420	12	3,956	749	2,653	570	35	4,007
2003	8,059	1,080	2,487	427	12	4,006	802	2,639	579	34	4,053
2004	8,133	1,126	2,465	433	11	4,035	853	2,625	588	32	4,098
2005	8,193	1,173	2,451	436	11	4,071	903	2,598	590	31	4,122
2006	8,212	1,218	2,418	431	11	4,077	955	2,565	585	30	4,134
2007	8,207	1,259	2,384	422	10	4,074	1,004	2,526	574	29	4,132
2008	8,126	1,289	2,334	406	10	4,039	1,044	2,462	554	27	4,087
2009	8,011	1,310	2,277	386	9	3,982	1,076	2,399	529	26	4,029
45–64											
1971	11,887	502	4,995	81	173	5,751	569	4,709	125	733	6,136
1976	11,484	496	4,787	141	160	5,583	462	4,568	188	683	5,901
1981	11,040	480	4,560	218	147	5,405	386	4,358	271	620	5,635
1986	10,860	461	4,422	331	141	5,355	327	4,220	388	570	5,505
1991	10,960	456	4,394	456	127	5,433	292	4,211	521	503	5,527
1996	11,820	528	4,587	628	121	5,864	318	4,466	732	440	5,956
2001	12,447	644	4,647	747	121	6,159	391	4,578	918	401	6,289
2002	12,571	670	4,646	775	119	6,210	413	4,599	959	391	6,361
2003	12,708	700	4,651	807	118	6,276	437	4,616	999	380	6,432
2004	12,851	734	4,656	839	116	6,345	464	4,631	1,040	370	6,506
2005	13,021	771	4,672	873	115	6,431	496	4,650	1,083	361	6,590
2006	13,243	813	4,704	905	115	6,537	534	4,689	1,129	355	6,706
2007	13,443	857	4,717	935	114	6,623	576	4,722	1,175	347	6,821
2008	13,640	906	4,736	961	113	6,717	624	4,744	1,216	339	6,923
2009	13,840	961	4,756	985	111	6,814	677	4,766	1,255	329	7,026
65 and over											
1971	6,592	179	1,840	17	492	2,527	580	1,437	32	2,016	4,065
1976	7,119	197	2,033	33	510	2,773	569	1,579	60	2,138	4,347
1981	7,548	216	2,167	54	534	2,971	533	1,692	90	2,263	4,578
1986	7,768	223	2,234	76	539	3,072	477	1,759	127	2,333	4,696
1991	8,080	231	2,332	99	586	3,248	422	1,853	152	2,405	4,832
1996	8,221	247	2,390	134	597	3,367	369	1,897	196	2,393	4,854
2001	8,342	254	2,478	183	595	3,510	318	1,960	259	2,295	4,832
2002	8,397	255	2,509	196	594	3,554	308	1,987	276	2,272	4,844
2003	8,454	257	2,539	209	592	3,597	301	2,017	295	2,245	4,857
2004	8,510	258	2,568	223	591	3,640	293	2,047	314	2,216	4,870
2005	8,571	260	2,599	238	589	3,685	286	2,078	334	2,187	4,886
2006	8,611	260	2,622	252	587	3,722	279	2,102	353	2,155	4,889
2007	8,691	263	2,658	267	587	3,776	274	2,138	375	2,128	4,916
2008	8,828	269	2,714	285	587	3,856	271	2,196	401	2,104	4,972
2009	8,983	274	2,778	305	588	3,945	268	2,258	430	2,082	5,038

See notes on first page of table

Table 2.1 Vital statistics summary

Constituent countries of the United Kingdom

Numbers (thousands) and rates

Year and quarter		All live births		Live births outside marriage		Marriages		Civil Partnerships		Divorces		Deaths		Infant mortality[6]		Neonatal mortality[7]		Perinatal mortality[8]	
		Number	Rate[1]	Number	Rate[2]	Number	Rate[3]	Number	Rate[4]	Number	Rate[5]	Number	Rate[1]	Number	Rate[2]	Number	Rate[2]	Number	Rate[9]
United Kingdom																			
1976		675.5	12.0	61.1	90	406.0	..	:	:	136.0	..	680.8	12.1	9.79	14.5	6.68	9.9	12.25	18.0
1981		730.7	13.0	91.3	125	397.8	49.4	:	:	157.0	11.3	658.0	11.7	8.16	11.2	4.93	6.7	8.79	12.0
1986		754.8	13.3	154.3	204	393.9	..	:	:	168.3	..	660.7	11.7	7.18	9.5	4.00	5.3	7.31	9.6
1991		792.3	13.8	236.1	298	349.7	..	:	:	173.5	..	646.2	11.2	5.82	7.4	3.46	4.4	6.45	8.1
1996		733.2	12.6	260.4	355	317.5	..	:	:	171.7	..	636.0	10.9	4.50	6.1	3.00	4.1	6.41	8.7
2001		669.1	11.3	268.0	401	286.1	..	:	:	156.8	..	602.3	10.2	3.69	5.5	2.45	3.7	5.40	8.0
2002		668.8	11.3	271.7	406	293.0	..	:	:	160.8	..	608.0	10.3	3.54	5.3	2.37	3.5	5.59	8.3
2003		695.6	11.7	288.5	415	308.6	..	:	:	166.2	..	612.1	10.3	3.69	5.3	2.51	3.6	5.95	8.5
2004		716.0	12.0	302.6	423	313.6	..	:	:	166.7	..	584.8	9.8	3.66	5.1	2.49	3.5	6.03	8.4
2005		722.5	12.0	310.2	429	286.8	..	1.95[10]	..	154.6	..	583.0	9.7	3.67	5.1	2.52	3.5	5.78	8.0
2006		748.6	12.4	326.8	437	277.6	..	16.11	..	147.8	..	572.2	9.4	3.74	5.0	2.61	3.5	5.94	7.9
2007		772.2	12.7	343.2	444	273.9	..	8.73	..	143.9	..	574.7	9.4	3.74	4.8	2.55	3.3	6.00	7.7
2008		794.4	12.9	360.8	454	270.4[P]	..	7.17	..	136.0	..	579.7	9.4	3.75	4.7	2.56	3.2	6.02	7.5
2009		790.2	12.8	365.8	463	..	..	6.28[P]	..	126.5	..	559.6	9.1	3.68	4.6	2.51	3.2	6.04	7.6
2007	March	184.4	12.3	81.9	444	31.2	..	1.69	..	38.8	..	159.3	10.6	0.91	4.9	0.64	3.4	1.47	7.9
	June	189.8	12.5	82.6	435	76.6	..	2.37	..	37.1	..	138.0	9.1	0.99	5.2	0.66	3.5	1.53	8.0
	Sept	202.8	13.2	90.5	446	117.7	..	2.96	..	36.6	..	129.9	8.4	0.94	4.6	0.63	3.1	1.50	7.4
	Dec	195.3	12.7	88.1	451	48.4	..	1.71	..	31.3	..	147.5	9.6	0.90	4.6	0.62	3.2	1.50	7.6
2008	March	195.4	12.8	88.8	455	32.0[P]	..	1.25	..	35.3	..	155.6	10.2	0.95	4.9	0.66	3.4	1.53	7.8
	June	198.2	12.9	89.1	449	73.7[P]	..	1.93	..	34.5	..	140.2	9.2	0.88	4.4	0.59	3.0	1.48	7.4
	Sept	204.4	13.4	93.3	456	114.6[P]	..	2.46	..	33.9	..	130.3	8.4	0.97	4.7	0.67	3.3	1.47	7.2
	Dec	196.4	12.7	89.6	456	50.1[P]	..	1.53	..	32.3	..	153.5	9.9	0.95	4.8	0.64	3.2	1.54	7.8
2009	March	189.8	12.5	87.8	463	30.7[P]	..	0.98[P]	..	31.5	..	157.9	10.4	0.93	4.9	0.62	3.2	1.49	7.8
	June	196.3	12.7	89.2	455	74.4[P]	..	1.66[P]	..	30.5	..	131.9	8.6	0.94	4.8	0.63	3.2	1.51	7.7
	Sept	202.8	13.0	94.6	466	109.1[P]	..	2.28[P]	..	31.9	..	126.4	8.1	0.89	4.4	0.64	3.1	1.54	7.5
	Dec	201.3	12.9	94.2	468	..	..	1.37[P]	..	32.6	..	143.5	9.2	0.91	4.5	0.63	3.1	1.50	7.4
2010	March	195.7[P]	12.8[P]	92.0[P]	470[P]	..	..	0.96[P]	..	..	..	153.3[P]	10.0[P]	0.91[P]	4.6[P]	0.63[P]	3.2[P]	1.48[P]	7.5[P]
	June	197.0[P]	12.7[P]	91.3[P]	463[P]	..	..	1.66[P]	..	..	..	133.4[P]	8.6[P]	0.88[P]	4.5[P]	0.62[P]	3.1[P]	1.45[P]	7.3[P]
	Sept	207.0[P]	13.2[P]	97.2[P]	470[P]	..	..	2.33[P]	..	..	..	128.2[P]	8.2[P]	0.87[P]	4.2[P]	0.58[P]	2.8[P]	1.55[P]	7.4[P]
England and Wales																			
1976		584.3	11.8	53.8	92	358.6	57.7	:	:	126.7	10.1	598.5	12.1	8.34	14.3	5.66	9.7	10.45	17.7
1981		634.5	12.8	81.0	128	352.0	49.6	:	:	145.7	11.9	577.9	11.6	7.02	11.1	4.23	6.7	7.56	11.8
1986		661.0	13.2	141.3	214	347.9	43.6	:	:	153.9	12.9	581.2	11.6	6.31	9.6	3.49	5.3	6.37	9.6
1991		699.2	13.8	211.3	302	306.8	36.0	:	:	158.7	13.5	570.0	11.2	5.16	7.4	3.05	4.4	5.65	8.0
1996		649.5	12.6	232.7	358	279.0	30.9	:	:	157.1	13.8	560.1	10.9	3.99	6.1	2.68	4.1	5.62	8.6
2001		594.6	11.4	238.1	400	249.2	25.4	:	:	143.8	12.9	530.4	10.1	3.27	5.5	2.15	3.6	4.76	8.0
2002		596.1	11.3	242.0	406	255.6	25.6	:	:	147.7	13.3	535.4	10.2	3.17	5.3	2.14	3.6	5.01	8.3
2003		621.5	11.8	257.2	414	270.1	26.5	:	:	153.1	13.9	539.2	10.2	3.31	5.3	2.25	3.6	5.35	8.6
2004		639.7	12.1	269.7	422	273.1	26.2	:	:	153.0	14.0	514.3	9.7	3.27	5.1	2.24	3.5	5.41	8.4
2005		645.8	12.1	276.5	428	247.8	23.3	1.86[10]	5.8[10]	141.3	12.9	513.0	9.6	3.25	5.0	2.22	3.4	5.17	8.0
2006		669.6	12.5	291.4	435	239.5	22.0	14.94	1.4	132.1	12.1	502.6	9.4	3.37	5.0	2.35	3.5	5.36	8.0
2007		690.0	12.8	305.6	443	235.4	21.2	7.93	0.7	128.1	11.8	504.1	9.3	3.35	4.8	2.28	3.3	5.37	7.7
2008		708.7	13.0	320.8	453	233.0[P]	20.7[P]	6.56	0.6	121.7	11.2	509.1	9.3	3.37	4.8	2.30	3.2	5.38	7.6
2009		706.2	12.9	326.2	462	..	..	5.69	0.5[P]	114.0	10.5	491.3	9.0	3.31	4.7	2.25	3.2	5.40	7.6
2007	March	164.0	12.3	72.5	442	27.0	9.9	1.55	0.6	34.6	12.9	139.3	10.4	0.80	4.9	0.56	3.4	1.31	7.9
	June	169.5	12.6	73.5	434	66.0	23.9	2.16	0.8	33.1	12.2	121.0	9.0	0.88	5.2	0.60	3.5	1.36	8.0
	Sept	181.4	13.3	80.8	445	101.3	36.3	2.68	1.0	33.0	12.0	114.0	8.4	0.84	4.6	0.57	3.1	1.35	7.4
	Dec	175.0	12.8	78.7	450	41.1	14.7	1.54	0.6	27.6	10.1	129.7	9.5	0.83	4.7	0.56	3.2	1.35	7.7
2008	March	173.8	12.8	78.6	452	27.5[P]	9.8[P]	1.13	0.4	31.8	11.8	136.4	10.1	0.86	4.9	0.60	3.4	1.38	7.9
	June	177.0	13.1	79.4	449	63.6[P]	22.7[P]	1.79	0.6	30.7	11.4	123.1	9.1	0.79	4.5	0.53	3.0	1.33	7.4
	Sept	182.4	13.3	83.1	455	99.1[P]	34.9[P]	2.24	0.8	30.4	11.2	114.3	8.4	0.87	4.8	0.60	3.3	1.32	7.2
	Dec	175.5	12.8	79.8	455	42.9[P]	15.1[P]	1.39	0.5	28.8	10.6	135.3	9.9	0.85	4.8	0.57	3.3	1.36	7.7
2009	March	169.0	12.5	77.8	461	26.6[P]	9.4[P]	0.91	0.3[P]	28.4	10.6	138.9	10.3	0.83	4.9	0.54	3.2	1.33	7.8
	June	175.1	12.8	79.4	454	64.2[P]	22.5[P]	1.49	0.5[P]	27.2	10.1	115.7	8.5	0.85	4.9	0.56	3.2	1.34	7.6
	Sept	181.3	13.1	84.4	466	94.6[P]	32.8[P]	2.06	0.7[P]	28.8	10.6	110.7	8.0	0.80	4.4	0.57	3.1	1.38	7.6
	Dec	180.9	13.1	84.5	467	..	..	1.23	0.4[P]	29.6	10.8	126.1	9.1	0.84	4.6	0.58	3.2	1.35	7.4
2010	March	174.7[P]	12.8[P]	81.9[P]	469[P]	..	..	0.88[P]	0.3[P]	..	..	134.5[P]	9.9[P]	0.80[P]	4.6[P]	0.56[P]	3.2[P]	1.31[P]	7.5[P]
	June	176.1[P]	12.8[P]	81.4[P]	462[P]	..	..	1.51[P]	0.5[P]	..	..	117.3[P]	8.5[P]	0.80[P]	4.5[P]	0.55[P]	3.1[P]	1.31[P]	7.4[P]
	Sept	185.7[P]	13.3[P]	87.3[P]	470[P]	..	..	2.12[P]	0.7[P]	..	..	112.4[P]	8.1[P]	0.79[P]	4.3[P]	0.53[P]	2.8[P]	1.40[P]	7.5[P]

Notes: Death figures for England and Wales represent the number of deaths registered in each year up to 1992, and the number of deaths occurring in each year from 1993 to 2001. Death figures for 2002 onwards relate to registrations.
Infant, neonatal and perinatal mortality rates for Northern Ireland take account of the non-resident livebirths.
Birth and death figures for England and also for Wales each exclude events for persons usually resident outside England and Wales. These events are, however, included in the totals for England and Wales combined, and for the United Kingdom.
All infant, neonatal and perinatal mortality data has been revised to registration data.
From 1981 births to non-resident mothers in Northern Ireland are excluded from the figures for Northern Ireland, and for the United Kingdom.
Divorce figures for England and Wales back to 2003 differ slightly to those previously published due to further duplicate records being identified and removed from the datasets.
The birth and death rates for 2009 are based on mid-2009 population estimates.
The birth and death rates for 2010 are based on 2008-based population projections for 2010.

1 Per 1,000 population of all ages.
2 Per 1,000 live births.
3 Persons marrying per 1,000 unmarried population aged 16 and over.
4 Persons forming a civil partnership per 1,000 unmarried population aged 16 and over.
5 Persons divorcing per 1,000 married population.
6 Deaths under 1 year.
7 Deaths under 4 weeks.
8 Stillbirths and deaths under 1 week.

The birth rates for all live births and the death rates for 2002-2008 have been calculated using revised mid-2002 to mid-2008 population estimates which were published on 13 May 2010.
Live births outside marriage, marriage, civil partnership and divorce rates for 2009 and 2010 are based on 2009 marital status estimates which include marriages abroad.
Rates of live births outside marriage, marriages, civil partnerships and divorces for mid-2002 to mid-2008 have been calculated using revised marital status estimates (including marriages abroad) published on 30 November 2010.
The latest marital status estimates available for Scotland are for 2008. The production of marital status estimates for 2009 and future years are currently on hold Pending the results of the GROS Demography Statistical Work Programme Consultation. Rates for 2009 onwards have not been calculated.
Marital status estimates/rates are not available for Northern Ireland/UK.
Figures may not sum due to rounding.

9 Per 1,000 live births and stillbirths.
10 The Civil Partnership Act 2004 came into force on 5 December 2005 in the UK - see Notes to tables.
P provisional.

Sources: Office for National Statistics, General Register Office for Scotland, Northern Ireland Statistics and Research Agency.

Table 2.1 continued **Vital statistics summary**

Constituent countries of the United Kingdom

Numbers (thousands) and rates

Year and quarter		All live births		Live births outside marriage		Marriages		Civil Partnerships		Divorces		Deaths		Infant mortality[6]		Neonatal mortality[7]		Perinatal mortality[8]	
		Number	Rate[1]	Number	Rate[2]	Number	Rate[3]	Number	Rate[4]	Number	Rate[5]	Number	Rate[1]	Number	Rate[2]	Number	Rate[2]	Number	Rate[9]
England																			
1976		550.4	11.8	50.8	92	339.0	..	:	:	..	..	560.3	12.0	7.83	14.2	5.32	9.7	9.81	17.6
1981		598.2	12.8	76.9	129	332.2	..	:	:	..	..	541.0	11.6	6.50	10.9	3.93	6.6	7.04	11.7
1986		623.6	13.2	133.5	214	328.4	..	:	:	146.0	..	544.5	11.6	5.92	9.5	3.27	5.2	5.98	9.5
1991		660.8	13.8	198.9	301	290.1	..	:	:	150.1	..	534.0	11.2	4.86	7.3	2.87	4.3	5.33	8.0
1996		614.2	12.7	218.2	355	264.2	..	:	:	148.7	..	524.0	10.8	3.74	6.1	2.53	4.1	5.36	8.7
2001		563.7	11.4	223.3	396	236.2	..	:	:	136.4	..	496.1	10.0	3.06	5.4	2.03	3.6	4.51	8.0
2002		565.7	11.4	227.0	401	242.1	..	:	:	140.2	..	500.8	10.1	3.00	5.3	2.03	3.6	4.76	8.4
2003		589.9	11.8	241.4	409	255.6	..	:	:	145.4	..	504.1	10.1	3.15	5.3	2.14	3.6	5.08	8.6
2004		607.2	12.1	253.1	417	258.2	..	:	:	145.0	..	480.7	9.6	3.07	5.1	2.12	3.5	5.12	8.4
2005		613.0	12.1	259.4	423	233.8	..	1.79[10]	..	134.2	..	479.7	9.5	3.08	5.0	2.11	3.4	4.91	8.0
2006		635.7	12.5	273.5	430	226.0	..	14.38	..	125.2	..	470.3	9.3	3.19	5.0	2.24	3.5	5.11	8.0
2007		655.4	12.8	287.0	438	222.5	..	7.64	..	121.5	..	470.7	9.2	3.13	4.8	2.15	3.3	5.10	7.7
2008		672.8	13.1	300.9	447	220.1[P]	..	6.28	..	115.5	..	475.8	9.2	3.18	4.7	2.18	3.2	5.11	7.6
2009		671.1	13.0	306.3	457	..	..	5.44	..	107.2	..	459.2	8.9	3.11	4.6	2.13	3.2	5.11	7.6
2007	March	155.9	12.4	68.1	437	25.6	..	1.49	..	32.8	..	130.3	10.3	0.74	4.7	0.52	3.3	1.23	7.8
	June	161.0	12.6	69.0	429	62.4	..	2.06	..	31.3	..	112.9	8.9	0.84	5.2	0.57	3.5	1.30	8.0
	Sept	172.2	13.4	75.9	441	95.6	..	2.60	..	31.3	..	106.4	8.3	0.79	4.6	0.54	3.1	1.29	7.5
	Dec	166.3	12.9	74.0	445	38.9	..	1.48	..	26.2	..	121.2	9.4	0.76	4.6	0.53	3.2	1.28	7.6
2008	March	165.0	12.9	73.7	447	25.9[P]	..	1.08	..	30.2	..	127.6	10.0	0.82	4.9	0.57	3.4	1.30	7.9
	June	167.9	13.1	74.4	443	60.0[P]	..	1.72	..	29.2	..	115.1	9.0	0.74	4.4	0.50	3.0	1.26	7.5
	Sept	173.2	13.4	77.9	450	93.5[P]	..	2.14	..	28.8	..	106.7	8.2	0.82	4.7	0.57	3.3	1.25	7.2
	Dec	166.7	12.9	74.9	449	40.6[P]	..	1.33	..	27.3	..	126.4	9.8	0.81	4.8	0.54	3.3	1.30	7.7
2009	March	160.5	12.6	73.1	455	25.2[P]	..	0.88	..	26.8	..	129.7	10.2	0.79	4.9	0.52	3.3	1.27	7.9
	June	166.4	12.9	74.6	448	60.7[P]	..	1.41	..	25.6	..	108.2	8.4	0.80	4.8	0.53	3.2	1.27	7.6
	Sept	172.2	13.2	79.3	460	89.3[P]	..	1.97	..	27.0	..	103.5	7.9	0.74	4.3	0.53	3.1	1.30	7.5
	Dec	171.9	13.2	79.4	462	..	..	1.18	..	27.8	..	117.8	9.0	0.78	4.5	0.54	3.1	1.27	7.3
2010	March	165.8[P]	12.9[P]	76.8[P]	463[P]	..	..	0.84[P]	..	..	..	125.8[P]	9.8[P]	0.76[P]	4.6[P]	0.53[P]	3.2[P]	1.24[P]	7.4[P]
	June	167.4[P]	12.9[P]	76.5[P]	457[P]	..	..	1.45[P]	..	..	..	109.7[P]	8.4[P]	0.75[P]	4.5[P]	0.53[P]	3.1[P]	1.25[P]	7.4[P]
	Sept	176.4[P]	13.4[P]	81.9[P]	464[P]	..	..	2.02[P]	..	..	..	105.0[P]	8.0[P]	0.75[P]	4.2[P]	0.50[P]	2.8[P]	1.33[P]	7.5[P]
Wales																			
1976		33.4	11.9	2.9	86	19.5	..	:	:	..	..	36.3	13.0	0.46	13.7	0.32	9.6	0.64	19.0
1981		35.8	12.7	4.0	112	19.8	..	:	:	..	..	35.0	12.4	0.45	12.6	0.29	8.1	0.51	14.1
1986		37.0	13.2	7.8	211	19.5	..	:	:	7.8	..	34.7	12.3	0.35	9.5	0.21	5.6	0.38	10.3
1991		38.1	13.3	12.3	323	16.6	..	:	:	8.4	..	34.1	11.9	0.25	6.6	0.16	4.1	0.30	7.9
1996		34.9	12.1	14.4	412	14.8	..	:	:	8.4	..	34.6	12.0	0.20	5.6	0.13	3.6	0.26	7.5
2001		30.6	10.5	14.8	483	13.0	..	:	:	7.4	..	33.0	11.3	0.17	5.5	0.11	3.4	0.23	7.5
2002		30.2	10.4	15.0	497	13.5	..	:	:	7.6	..	33.3	11.4	0.14	4.7	0.10	3.1	0.24	7.7
2003		31.4	10.7.	15.8	503	14.5	..	:	:	7.7	..	33.8	11.5	0.13	4.1	0.09	3.0	0.24	7.5
2004		32.3	11.0	16.6	513	14.9	..	:	:	7.9	..	32.3	11.0	0.17	5.1	0.11	3.3	0.26	8.1
2005		32.6	11.0	17.1	524	14.0	..	0.07[10]	..	7.2	..	32.2	10.9	0.14	4.3	0.09	2.9	0.24	7.4
2006		33.6	11.4	17.8	530	13.5	..	0.56	..	6.9	..	31.1	10.5	0.14	4.1	0.09	2.8	0.23	6.9
2007		34.4	11.6	18.5	538	12.9	..	0.29	..	6.7	..	32.1	10.8	0.18	5.3	0.12	3.4	0.25	7.3
2008		35.7	11.9	19.8	556	12.9[P]	..	0.28	..	6.3	..	32.1	10.7	0.15	4.1	0.11	3.0	0.24	6.7
2009		34.9	11.6	19.8	566	..	..	0.24	..	6.7	..	31.0	10.3	0.17	4.8	0.11	3.1	0.26	7.4
2007	March	8.1	11.0	4.3	536	1.3	..	0.06	..	1.8	..	8.8	11.9	0.05	6.3	0.03	3.7	0.07	9.0
	June	8.5	11.5	4.5	530	3.6	..	0.10	..	1.8	..	7.9	10.6	0.04	4.5	0.02	2.8	0.06	6.8
	Sept	9.1	12.2	4.9	541	5.7	..	0.08	..	1.7	..	7.3	9.7	0.04	4.4	0.03	2.8	0.05	5.7
	Dec	8.7	11.6	4.8	547	2.2	..	0.06	..	1.4	..	8.3	11.0	0.05	6.1	0.04	4.1	0.07	7.9
2008	March	8.7	11.8	4.8	552	1.6[P]	..	0.06	..	1.6	..	8.6	11.5	0.04	4.1	0.03	3.0	0.06	7.3
	June	9.0	12.1	5.0	555	3.5[P]	..	0.07	..	1.5	..	7.7	10.4	0.04	4.2	0.03	3.2	0.06	6.4
	Sept	9.2	12.2	5.1	556	5.5[P]	..	0.10	..	1.6	..	7.3	9.7	0.04	3.8	0.03	2.9	0.06	6.3
	Dec	8.8	11.6	4.9	561	2.3[P]	..	0.06	..	1.5	..	8.5	11.3	0.04	4.3	0.03	3.0	0.06	6.9
2009	March	8.4	11.4	4.7	559	1.4[P]	..	0.03	..	1.6	..	8.9	12.0	0.03	3.1	0.02	2.0	0.05	5.3
	June	8.6	11.5	4.8	561	3.5[P]	..	0.08	..	1.6	..	7.3	9.7	0.04	4.5	0.03	3.0	0.07	7.5
	Sept	8.9	11.8	5.1	571	5.3[P]	..	0.09	..	1.8	..	6.9	9.2	0.05	5.5	0.03	3.6	0.08	8.6
	Dec	8.9	11.8	5.1	572	..	..	0.05	..	1.8	..	7.9	10.5	0.05	5.8	0.03	3.6	0.07	8.1
2010	March	8.8[P]	11.8[P]	5.1[P]	579[P]	..	..	0.04[P]	..	..	..	8.5[P]	11.5[P]	0.04[P]	4.6[P]	0.03[P]	3.2[P]	0.07[P]	7.6[P]
	June	8.6[P]	11.4[P]	4.9[P]	571[P]	..	..	0.06[P]	..	..	..	7.4[P]	9.8[P]	0.03[P]	3.6[P]	0.02[P]	2.6[P]	0.05[P]	6.0[P]
	Sept	9.2[P]	12.2[P]	5.4[P]	588[P]	..	..	0.10[P]	..	..	..	7.1[P]	9.4[P]	0.04[P]	4.1[P]	0.03[P]	2.8[P]	0.07[P]	7.3[P]
Scotland																			
1976		64.9	12.5	6.0	93	37.5	53.8	:	:	8.1	6.5	65.3	12.5	0.96	14.8	0.67	10.3	1.20	18.3
1981		69.1	13.4	8.5	122	36.2	47.5	:	:	9.9	8.0	63.8	12.3	0.78	11.3	0.47	6.9	0.81	11.6
1986		65.8	12.9	13.6	206	35.8	42.9	:	:	12.8	10.7	63.5	12.4	0.58	8.8	0.34	5.2	0.67	10.2
1991		67.0	13.2	19.5	291	33.8	39.0	:	:	12.4	10.6	61.0	12.0	0.47	7.1	0.29	4.6	0.58	8.6
1996		59.3	11.6	21.4	360	30.2	33.2	:	:	12.3	10.9	60.7	11.9	0.37	6.2	0.23	3.9	0.55	9.2
2001		52.5	10.4	22.8	433	29.6	31.0	:	:	10.7	9.7	57.4	11.3	0.29	5.5	0.20	3.8	0.45	8.5
2002		51.3	10.1	22.5	440	29.8	30.8	:	:	10.9	10.0	58.1	11.5	0.27	5.3	0.16	3.2	0.39	7.6
2003		52.4	10.4	23.9	455	30.8	31.3	:	:	10.9	10.1	58.5	11.6	0.27	5.1	0.18	3.4	0.42	8.0
2004		54.0	10.6	25.2	467	32.2	32.1	:	:	11.3	10.5	56.2	11.1	0.27	4.9	0.17	3.1	0.44	8.1
2005		54.4	10.7	25.6	471	30.9	30.3	0.08[10]	2.5[10]	10.9	10.3	55.7	10.9	0.28	5.2	0.19	3.5	0.42	7.7
2006		55.7	10.9	26.6	477	29.9	28.7	1.05	1.0	13.1	12.4	55.1	10.8	0.25	4.5	0.17	3.1	0.42	7.4
2007		57.8	11.2	28.4	491	29.9	28.0	0.69	0.6	12.8	12.2	56.0	10.9	0.27	4.7	0.19	3.2	0.45	7.8
2008		60.0	11.6	30.1	501	28.9	26.6	0.53	0.5	11.5	11.0	55.7	10.8	0.25	4.2	0.17	2.8	0.45	7.4
2009		59.0	11.4	29.7	503	27.5	..	0.50	..	10.4	..	53.9	10.4	0.24	4.0	0.17	2.8	0.44	7.4

See notes on first page of table

Table 2.1 continued **Vital statistics summary**

Constituent countries of the United Kingdom

Numbers (thousands) and rates

Year and quarter		All live births		Live births outside marriage		Marriages		Civil Partnerships		Divorces		Deaths		Infant mortality[6]		Neonatal mortality[7]		Perinatal mortality[8]	
		Number	Rate[1]	Number	Rate[2]	Number	Rate[3]	Number	Rate[4]	Number	Rate[5]	Number	Rate[1]	Number	Rate[2]	Number	Rate[2]	Number	Rate[9]
2007	March	14.2	11.2	7.1	501	3.3	12.7	0.11	0.4	3.3	12.8	15.8	12.5	0.07	4.9	0.05	3.6	0.12	8.1
	June	14.3	11.1	6.9	482	8.1	30.7	0.18	0.7	3.3	12.8	13.4	10.4	0.08	5.3	0.05	3.4	0.12	8.6
	Sept	14.9	11.5	7.2	485	12.6	46.9	0.25	0.9	3.0	11.5	12.6	9.7	0.07	4.6	0.05	3.0	0.11	7.1
	Dec	14.4	11.1	7.1	497	5.8	21.5	0.15	0.6	3.1	11.8	14.2	10.9	0.06	3.9	0.04	2.9	0.11	7.5
2008	March	15.1	11.9	7.7	510	3.4	12.7	0.10	0.4	2.8	10.7	15.1	11.7	0.06	4.0	0.04	2.8	0.11	7.0
	June	14.9	11.5	7.3	488	7.9	29.2	0.11	0.4	3.0	11.8	13.5	10.5	0.06	4.0	0.04	2.5	0.11	7.5
	Sept	15.5	11.9	7.7	498	11.9	43.5	0.20	0.7	2.8	10.9	12.6	9.7	0.07	4.8	0.05	3.4	0.11	6.9
	Dec	14.5	11.2	7.4	507	5.7	20.7	0.12	0.4	2.8	10.8	14.5	11.2	0.06	4.1	0.04	2.4	0.12	8.2
2009	March	14.5	11.3	7.4	512	3.2	..	0.05	..	2.5	..	14.8	11.6	0.06	4.3	0.04	2.9	0.10	6.7
	June	14.9	11.5	7.4	495	7.9	..	0.15	..	2.8	..	12.8	9.9	0.06	4.0	0.05	3.2	0.13	8.9
	Sept	15.3	11.7	7.6	499	11.3	..	0.19	..	2.6	..	12.4	9.5	0.06	3.9	0.04	2.6	0.10	6.5
	Dec	14.4	11.0	7.3	507	5.2	..	0.11	..	2.5	..	13.8	10.5	0.05	3.7	0.04	2.5	0.11	7.4
2010	March	14.7[P]	11.5[P]	7.5[P]	512[P]	3.1[P]	..	0.06[P]	..	..	..	14.7[P]	11.4[P]	0.06[P]	4.4[P]	0.05[P]	3.1[P]	0.12[P]	7.8[P]
	June	14.7[P]	11.3[P]	7.4[P]	500[P]	8.3[P]	..	0.13[P]	..	..	..	12.8[P]	9.9[P]	0.05[P]	3.4[P]	0.03[P]	2.3[P]	0.10[P]	6.4[P]
	Sept	14.9[P]	11.4[P]	7.3[P]	490[P]	11.6[P]	..	0.17[P]	..	..	..	12.5[P]	9.5[P]	0.05[P]	3.3[P]	0.03[P]	2.2[P]	0.11[P]	7.0[P]
Northern Ireland																			
1976		26.4	17.3	1.3	50	9.9	..	:	:	0.6	..	17.0	11.2	0.48	18.3	0.35	13.3	0.59	22.3
1981		27.2	17.6	1.9	70	9.6	45.4	:	:	1.4	4.2	16.3	10.6	0.36	13.2	0.23	8.3	0.42	15.3
1986		28.0	17.8	3.6	128	10.2	..	:	:	1.5	..	16.1	10.3	0.36	13.2	0.23	8.3	0.42	15.3
1991		26.0	16.2	5.3	203	9.2	..	:	:	2.3	..	15.1	9.4	0.19	7.4	0.12	4.6	0.22	8.4
1996		24.4	14.7	6.3	260	8.3	..	:	:	2.3	..	15.2	9.2	0.14	5.8	0.09	3.7	0.23	9.4
2001		22.0	13.0	7.1	325	7.3	..	:	:	2.4	..	14.5	8.6	0.13	6.0	0.10	4.4	0.19	8.4
2002		21.4	12.6	7.2	335	7.6	..	:	:	2.2	..	14.6	8.6	0.10	4.6	0.07	3.4	0.19	8.7
2003		21.6	12.7	7.4	344	7.8	..	:	:	2.3	..	14.5	8.5	0.12	5.2	0.09	3.9	0.18	8.0
2004		22.3	13.0	7.7	345	8.3	..	:	:	2.5	..	14.4	8.4	0.12	5.3	0.08	3.6	0.19	8.0
2005		22.3	12.9	8.1	363	8.1	..	0.01[10]	..	2.4	..	14.2	8.2	0.14	6.1	0.11	4.9	0.19	8.1
2006		23.3	13.4	8.8	380	8.3	..	0.12	..	2.6	..	14.5	8.3	0.12	5.1	0.09	3.8	0.17	6.9
2007		24.5	13.9	9.3	379	8.7	..	0.11	..	2.9	..	14.6	8.3	0.12	4.9	0.08	3.2	0.17	6.9
2008		25.6	14.4	10.0	389	8.5	..	0.09	..	2.8	..	14.9	8.4	0.12	4.7	0.10	3.6	0.19	7.4
2009		24.9	13.9	9.9	398	7.9	..	0.10	..	2.2	..	14.4	8.1	0.13	5.1	0.10	3.8	0.20	7.8
2007	March	6.1	14.0	2.4	383	1.0	..	0.02	..	0.9	..	4.2	9.7	0.04	6.7	0.03	4.6	0.05	7.6
	June	6.0	13.6	2.2	365	2.4	..	0.03	..	0.7	..	3.6	8.2	0.03	5.1	0.02	2.9	0.04	6.7
	Sept	6.5	14.7	2.5	386	3.8	..	0.04	..	0.7	..	3.3	7.3	0.03	4.6	0.02	3.2	0.05	7.0
	Dec	5.9	13.3	2.2	380	1.6	..	0.02	..	0.6	..	3.6	8.1	0.02	3.3	0.01	2.2	0.04	6.5
2008	March	6.5	14.7	2.6	396	1.1	..	0.02	..	0.8	..	4.1	9.4	0.03	4.6	0.03	3.9	0.05	7.3
	June	6.3	14.3	2.4	384	2.2	..	0.02	..	0.7	..	3.6	8.2	0.03	4.6	0.02	3.5	0.04	6.4
	Sept	6.5	14.5	2.5	386	3.6	..	0.02	..	0.6	..	3.4	7.7	0.03	3.8	0.02	2.7	0.05	7.5
	Dec	6.3	14.2	2.5	389	1.6	..	0.02	..	0.7	..	3.7	8.4	0.04	5.7	0.03	4.3	0.05	8.2
2009	March	6.3	14.1	2.6	409	0.9	..	0.01	..	0.6	..	4.2	9.5	0.04	6.5	0.03	4.8	0.07	10.0
	June	6.3	14.1	2.4	389	2.3	..	0.02	..	0.6	..	3.4	7.7	0.03	4.8	0.02	3.4	0.04	6.0
	Sept	6.3	14.2	2.5	397	3.2	..	0.03	..	0.5	..	3.2	7.2	0.04	5.6	0.03	4.5	0.05	8.0
	Dec	6.0	13.3	2.4	395	1.5	..	0.03	..	0.5	..	3.6	8.0	0.02	3.5	0.02	2.5	0.04	7.0
2010	March	6.4[P]	14.4[P]	2.6[P]	407[P]	0.9[P]	..	0.02[P]	..	..	..	4.1[P]	9.3[P]	0.04[P]	6.1[P]	0.03[P]	4.5[P]	0.05[P]	8.2[P]
	June	6.3[P]	14.0[P]	2.5[P]	399[P]	2.4[P]	..	0.03[P]	..	..	..	3.3[P]	7.4[P]	0.04[P]	5.6[P]	0.03[P]	4.7[P]	0.05[P]	7.0[P]
	Sept	6.4[P]	14.1[P]	2.6[P]	406[P]	3.3[P]	..	0.05[P]	..	..	..	3.3[P]	7.2[P]	0.03[P]	4.7[P]	0.02[P]	3.7[P]	0.05[P]	6.9[P]

See notes on first page of table

Table 2.2 **Key demographic and health indicators**

Constituent countries of the United Kingdom

Numbers (thousands), rates, percentages, mean age

Year	Population	Live births	Deaths	Dependency ratio		Live births				Age-standardised mortality rate[6]	Period expectation of life (in years) at birth[7]		Infant mortality rate[8]
				Children[1]	Elderly[2]	TFR[3]	Standardised mean age of mother at birth (years)[4]	Unstandardised mean age of mother at birth (years)[5]	Outside marriage as percentage of total live births		Males	Females	
United Kingdom													
1976	56,216.1	675.5	680.8	42.1	29.5	1.74	26.7	26.4	9.0	10,486	..	..	14.5
1981	56,357.5	730.7	658.0	37.1	29.7	1.82	27.0	26.8	12.5	9,506	70.8	76.8	11.2
1986	56,683.8	754.8	660.7	33.5	29.7	1.78	27.4	27.0	20.4	8,914	71.9	77.7	9.5
1991	57,438.7	792.3	646.2	33.2	30.0	1.82	27.7	27.7	29.8	8,168	73.2	78.7	7.4
1996	58,164.4	733.2	636.0	33.9	30.0	1.73	28.2	28.6	35.5	7,584	74.2	79.4	6.1
2001	59,113.5	669.1	602.3	32.6	29.8	1.63	28.6	29.2	40.1	6,807	75.6	80.4	5.5
2002	59,318.8	668.8	606.2	32.2	29.8	1.64	28.7	29.3	40.6	6,791	75.9	80.5	5.3
2003	59,552.2	695.6	612.0	31.8	29.9	1.71	28.8	29.4	41.5	6,773	76.2	80.7	5.3
2004	59,841.9	716.0	583.1	31.4	30.0	1.77	29.0	29.4	42.3	6,421	76.5	80.9	5.1
2005	60,235.5	722.5	582.7	31.0	30.0	1.78	29.1	29.5	42.9	6,279	76.9	81.3	5.1
2006	60,584.3	748.6	572.2	30.6	30.1	1.84	29.2	29.5	43.7	6,066	77.2	81.5	5.0
2007	60,985.7	772.2	574.7	30.4	30.5	1.90	29.3	29.5	44.4	5,965	77.4	81.6	4.8
2008	61,398.2	794.4	579.7	30.2	31.0	1.96	29.3	29.5	45.3	5,907	77.7	81.9	4.7
2009	61,792.0	790.2	559.6	30.2	31.4	1.94	29.4	29.5	46.3	5,630	..	..	4.6
England													
1976	46,659.9	550.4	560.3	41.4	29.7	1.70	26.5	26.4	9.2	10,271	..	..	14.2
1981	46,820.8	598.2	541.0	36.4	29.9	1.79	27.0	26.8	12.9	9,298	71.1	77.0	10.9
1986	47,187.6	623.6	544.5	33.1	29.8	1.76	27.4	27.0	21.4	8,725	72.2	77.9	9.5
1991	47,875.0	660.8	534.0	32.9	30.0	1.81	27.7	27.7	30.1	8,017	73.4	78.9	7.3
1996	48,519.1	614.2	524.0	33.7	30.0	1.73	28.2	28.7	35.5	7,414	74.5	79.6	6.1
2001	49,449.7	563.7	496.1	32.5	29.7	1.63	28.6	29.3	39.6	6,650	75.9	80.6	5.4
2002	49,649.1	565.7	499.1	32.1	29.7	1.65	28.7	29.4	40.1	6,631	76.1	80.7	5.3
2003	49,863.3	589.9	503.4	31.8	29.8	1.73	28.9	29.4	40.9	6,617	76.5	80.9	5.3
2004	50,109.7	607.2	479.2	31.4	29.8	1.78	29.0	29.5	41.7	6,265	76.8	81.1	5.1
2005	50,466.2	613.0	479.4	30.9	29.9	1.79	29.1	29.5	42.3	6,131	77.2	81.5	5.0
2006	50,763.9	635.7	470.3	30.6	29.9	1.86	29.2	29.5	43.0	5,914	77.5	81.7	5.0
2007	51,106.2	655.4	470.7	30.4	30.3	1.91	29.3	29.6	43.8	5,791	77.7	81.9	4.8
2008	51,464.6	672.8	475.8	30.3	30.8	1.96	29.4	29.5	44.7	5,746	78.0	82.1	4.7
2009	51,809.7	671.1	459.2	30.2	31.2	1.96	29.4	29.5	45.6	5,478	..	..	4.6

Notes: Death figures for England and Wales represent the number of deaths registered in each year up to 1992, and the number of deaths occurring in each year from 1993 to 2005.
Death figures for 2006 onwards relate to registrations.
Birth and death figures for England and also for Wales each exclude events for persons usually resident outside England and Wales (apart from life expectancy figures - where those occurring in England and Wales are assigned to England). These events are, however, included in the total for the United Kingdom.
From 1981 births to non-resident mothers in Northern Ireland are excluded from the figures for Northern Ireland, and for the United Kingdom.
Birth and death rates for 2009 have been calculated using mid-2009 population estimates.
The birth rates, death rates and the standardised mean age of mother at birth for 2002-2008 have been calculated using revised mid-2002 to mid-2008 population estimates which were published on 13 May 2010. Consequently, some figures may differ from those published previously.
Infant mortality rates for Northern Ireland take account of the non-resident live births.

1 Percentage of children under 16 to working-age population (males 16–64 and females 16–59).
2 Percentage of males 65 and over and females 60 and over to working-age population (males 16–64 and females 16–59).
3 TFR (total fertility rate) is the number of children that would be born to a woman if current patterns of fertility persisted throughout her childbearing life. It is sometimes called the TPFR (total period fertility rate).
4 Standardised to take account of the age structure of the population.
5 Unstandardised and therefore takes no account of the age structure of the population.
6 Per million population.The age-standardised mortality rate makes allowances for changes in the age structure of the population and uses the European Standard population. See Notes to tables.
7 All countries: figures for all years based on registered deaths. A minor methodological change was introduced for the 2006 figures to ensure consistency with population estimates of the very elderly for England and Wales. The effect on calculated life expectancies is marginal.
8 Deaths at age under one year per 1,000 live births. All infant mortality data has now been revised to registration data.

Sources: Office for National Statistics, General Register Office for Scotland, Northern Ireland Statistics and Research Agency.

Table 2.2 continued **Key demographic and health indicators**

Constituent countries of the United Kingdom

Numbers (thousands), rates, percentages, mean age

Year	Population	Live births	Deaths	Dependency ratio		Live births				Age-standardised mortality rate[6]	Period expectation of life (in years) at birth[7]		Infant mortality rate[8]
				Children[1]	Elderly[2]	TFR[3]	Standardised mean age of mother at birth (years)[4]	Unstandardised mean age of mother at birth (years)[5]	Outside marriage as percentage of total live births		Males	Females	
Wales													
1976	2,799.3	33.4	36.3	42.0	30.9	1.78	26.2	26.0	8.6	10,858	..	..	13.7
1981	2,813.5	35.8	35.0	37.6	31.6	1.87	26.7	26.6	11.2	9,846	70.4	76.4	12.6
1986	2,810.9	37.0	34.7	34.3	32.5	1.86	26.9	26.5	21.1	9,043	71.6	77.5	9.5
1991	2,873.0	38.1	34.1	34.4	33.5	1.88	27.1	27.0	32.3	8,149	73.1	78.8	6.6
1996	2,891.3	34.9	34.6	34.9	33.7	1.81	27.5	27.8	41.2	7,758	73.8	79.1	5.6
2001	2,910.2	30.6	33.0	33.7	33.6	1.66	27.8	28.3	48.3	7,017	75.3	80.0	5.5
2002	2,918.2	30.2	33.2	33.3	33.7	1.65	28.0	28.4	49.7	6,997	75.5	80.1	4.7
2003	2,928.8	31.4	33.7	32.8	33.8	1.73	28.1	28.5	50.3	7,033	75.8	80.3	4.1
2004	2,943.5	32.3	32.1	32.3	33.9	1.79	28.2	28.5	51.3	6,645	76.1	80.6	5.1
2005	2,950.1	32.6	32.1	31.8	34.1	1.81	28.4	28.5	52.4	6,481	76.6	80.9	4.3
2006	2,961.9	33.6	31.1	31.4	34.3	1.86	28.5	28.5	53.0	6,199	76.7	81.1	4.1
2007	2,976.1	34.4	32.1	31.0	34.9	1.91	28.6	28.6	53.8	6,308	76.9	81.2	5.3
2008	2,990.1	35.7	32.1	30.7	35.5	1.97	28.7	28.5	55.6	6,147	77.1	81.4	4.1
2009	2,999.3	34.9	31.0	30.6	36.1	1.93	28.7	28.5	56.6	5,888	..	..	4.8
Scotland													
1976	5,233.4	64.9	65.3	44.7	28.4	1.79	26.4	26.0	9.3	11,675	..	..	14.8
1981	5,180.2	69.1	63.8	38.2	28.4	1.84	26.8	26.3	12.2	10,849	69.1	75.3	11.3
1986	5,111.8	65.8	63.5	33.6	28.1	1.67	27.1	26.6	20.6	10,120	70.2	76.2	8.8
1991	5,083.3	67.0	61.0	32.4	28.9	1.69	27.5	27.4	29.1	9,216	71.4	77.1	7.1
1996	5,092.2	59.3	60.7	32.3	29.2	1.56	28.0	28.5	36.0	8,791	72.2	77.9	6.2
2001	5,064.2	52.5	57.4	30.8	30.0	1.49	28.5	29.2	43.3	7,930	73.3	78.8	5.5
2002	5,054.8	51.3	58.1	30.3	30.2	1.48	28.6	29.2	44.0	7,955	73.5	78.9	5.3
2003	5,057.4	52.4	58.5	29.9	30.3	1.54	28.7	29.3	45.5	7,478	73.8	79.1	5.1
2004	5,078.4	54.0	56.2	29.5	30.5	1.60	28.9	29.4	46.7	7,536	74.2	79.3	4.9
2005	5,094.8	54.4	55.7	29.1	30.6	1.62	29.0	29.5	47.1	7,349	74.6	79.6	5.2
2006	5,116.9	55.7	55.1	28.7	30.6	1.67	29.1	29.5	47.7	7,162	74.8	79.7	4.5
2007	5,144.2	57.8	56.0	28.4	31.0	1.73	29.2	29.4	49.1	7,150	75.0	79.9	4.7
2008	5,168.5	60.0	55.7	28.2	31.4	1.80	29.3	29.4	50.1	7,006	75.3	80.1	4.2
2009	5,194.0	59.0	53.9	28.1	31.8	1.77	29.3	29.4	50.3	6,667	..	..	4.0
Northern Ireland													
1976	1,523.5	26.4	17.0	56.1	25.3	2.68	27.8	27.4	5.0	11,746	..	..	18.3
1981	1,543.0	27.2	16.3	50.6	25.3	2.59	28.1	27.5	7.0	10,567	69.2	75.5	13.2
1986	1,573.5	28.0	16.1	46.1	25.5	2.45	28.1	27.5	12.8	10,071	70.9	77.1	13.2
1991	1,607.3	26.0	15.1	44.1	26.1	2.16	28.3	28.0	20.3	8,303	72.6	78.4	7.4
1996	1,661.8	24.4	15.2	41.8	25.5	1.95	28.7	28.8	26.0	7,742	73.8	79.2	5.8
2001	1,689.3	22.0	14.5	38.6	25.5	1.80	29.1	29.4	32.5	6,976	75.2	80.1	6.0
2002	1,696.6	21.4	14.6	37.9	25.7	1.77	29.1	29.4	33.5	6,929	75.6	80.4	4.6
2003	1,702.6	21.6	14.5	37.2	25.9	1.81	29.2	29.5	34.4	6,742	75.8	80.6	5.2
2004	1,710.3	22.3	14.4	36.4	26.2	1.87	29.4	29.7	34.5	6,607	76.0	80.8	5.3
2005	1,724.4	22.3	14.2	35.8	26.3	1.87	29.5	29.7	36.3	6,415	76.1	81.0	6.1
2006	1,741.6	23.3	14.5	35.3	26.4	1.94	29.6	29.7	38.0	6,419	76.2	81.2	5.1
2007	1,759.1	24.5	14.6	34.9	26.6	2.02	29.8	29.8	37.9	6,319	76.3	81.2	4.9
2008	1,775.0	25.6	14.9	34.7	26.9	2.11	29.8	29.7	38.9	6,299	76.7	81.3	4.7
2009	1,788.9	24.9	14.4	34.6	27.3	2.04	29.8	29.7	39.8	6,002	..	..	5.1

See notes on first page of table

Table 3.1 **Live births: age of mother**

England and Wales

Numbers (thousands), rates, mean age and TFRs

Year and quarter	Age of mother at birth							Mean age[1] (years)	Age of mother at birth							Mean age[2] (years)	TFR[3]
	All ages	Under 20	20–24	25–29	30–34	35–39	40 and over		All ages	Under 20	20–24	25–29	30–34	35–39	40 and over		
	Total live births (numbers)								Age-specific fertility rates[4]								
1961	811.3	59.8	249.8	248.5	152.3	77.5	23.3	27.6	89.2	37.3	172.6	176.9	103.1	48.1	15.0	27.4	2.77
1964(max)	876.0	76.7	276.1	270.7	153.5	75.4	23.6	27.2	92.9	42.5	181.6	187.3	107.7	49.8	13.7	27.3	2.93
1966	849.8	86.7	285.8	253.7	136.4	67.0	20.1	26.8	90.5	47.7	176.0	174.0	97.3	45.3	12.5	27.1	2.75
1971	783.2	82.6	285.7	247.2	109.6	45.2	12.7	26.2	83.5	50.6	152.9	153.2	77.1	32.8	8.7	26.6	2.37
1976	584.3	57.9	182.2	220.7	90.8	26.1	6.5	26.4	60.4	32.2	109.3	118.7	57.2	18.6	4.8	26.5	1.71
1977(min)	569.3	54.5	174.5	207.9	100.8	25.5	6.0	26.5	58.1	29.4	103.7	117.5	58.6	18.2	4.4	26.6	1.66
1981	634.5	56.6	194.5	215.8	126.6	34.2	6.9	26.8	61.3	28.1	105.3	129.1	68.6	21.7	4.9	27.0	1.79
1986	661.0	57.4	192.1	229.0	129.5	45.5	7.6	27.0	60.6	30.1	92.7	123.8	78.0	24.6	4.8	27.4	1.77
1991	699.2	52.4	173.4	248.7	161.3	53.6	9.8	27.7	63.6	33.0	89.3	119.4	86.7	32.1	5.3	27.7	1.82
1992	689.7	47.9	163.3	244.8	166.8	56.7	10.2	27.9	63.6	31.7	86.1	117.6	87.4	33.4	5.8	27.8	1.80
1993	673.5	45.1	152.0	236.0	171.1	58.8	10.5	28.1	62.7	30.9	82.5	114.4	87.4	34.1	6.2	27.9	1.76
1994	664.7	42.0	140.2	229.1	179.6	63.1	10.7	28.4	62.0	28.9	79.0	112.2	89.4	35.8	6.4	28.1	1.75
1995	648.1	41.9	130.7	217.4	181.2	65.5	11.3	28.5	60.5	28.5	76.4	108.4	88.3	36.3	6.8	28.2	1.72
1996	649.5	44.7	125.7	211.1	186.4	69.5	12.1	28.6	60.6	29.7	77.0	106.6	89.8	37.5	7.2	28.2	1.74
1997	643.1	46.4	118.6	202.8	187.5	74.9	12.9	28.8	60.0	30.2	76.0	104.3	89.8	39.4	7.6	28.3	1.73
1998	635.9	48.3	113.5	193.1	188.5	78.9	13.6	28.9	59.2	30.9	74.9	101.5	90.6	40.4	7.9	28.3	1.72
1999	621.9	48.4	110.7	181.9	185.3	81.3	14.3	29.0	57.8	30.9	73.0	98.3	89.6	40.6	8.1	28.4	1.70
2000	604.4	45.8	107.7	170.7	180.1	85.0	15.1	29.1	55.9	29.3	70.0	94.3	87.9	41.4	8.3	28.5	1.65
2001	594.6	44.2	108.8	159.9	178.9	86.5	16.3	29.2	54.7	28.0	69.0	91.7	88.0	41.5	8.8	28.6	1.63
2002	596.1	43.5	111.0	153.4	180.5	90.4	17.3	29.3	54.7	27.1	69.1	91.5	89.9	43.0	9.1	28.7	1.65
2003	621.5	44.2	116.6	156.9	187.2	97.4	19.1	29.4	56.8	26.9	71.3	96.0	95.0	46.4	9.8	28.8	1.73
2004	639.7	45.1	121.1	160.0	190.6	102.2	20.8	29.4	58.2	26.8	72.7	97.7	99.7	48.8	10.4	28.9	1.78
2005	645.8	44.8	122.1	164.3	188.2	104.1	22.2	29.5	58.3	26.3	71.5	97.9	100.8	50.3	10.8	29.1	1.79
2006	669.6	45.5	127.8	172.6	189.4	110.5	23.7	29.5	60.2	26.6	73.0	100.7	104.9	53.9	11.4	29.1	1.86
2007	690.0	44.8	130.8	182.6	191.1	115.4	25.4	29.5	62.0	26.0	73.3	103.8	110.2	56.9	12.0	29.3	1.91
2008	708.7	44.7	136.0	193.0	192.5	116.2	26.4	29.5	63.8	26.0	74.4	108.1	113.1	58.4	12.6	29.3	1.97
2009	706.2	43.2	136.0	194.1	191.6	114.3	27.0	29.5	63.7	25.3	73.9	107.2	113.1	59.0	12.9	29.4	1.96
2007 March	164.0	10.9	31.1	42.7	45.7	27.4	6.2	29.5	59.8	25.6	70.8	98.5	106.9	54.8	12.0	29.3	1.85
June	169.5	10.7	31.4	44.6	47.8	28.9	6.2	29.6	61.1	25.0	70.6	101.8	110.5	57.1	11.8	29.4	1.89
Sept	181.4	11.9	34.6	48.6	50.0	29.9	6.4	29.5	64.7	27.3	76.9	109.8	114.4	58.6	12.0	29.2	2.00
Dec	175.0	11.3	33.7	46.6	47.6	29.2	6.6	29.5	62.4	26.1	74.9	105.2	108.9	57.2	12.4	29.3	1.93
2008 March	173.8	11.1	33.5	46.7	47.2	28.8	6.4	29.5	62.9	26.0	73.9	105.2	111.5	58.2	12.4	29.3	1.94
June	177.0	11.0	33.5	48.3	48.4	29.2	6.6	29.5	64.0	25.8	73.7	108.9	114.3	59.1	12.6	29.4	1.97
Sept	182.4	11.4	35.2	50.3	49.3	29.5	6.7	29.4	65.3	26.5	76.6	112.1	115.2	59.0	12.8	29.3	2.01
Dec	175.5	11.1	33.8	47.7	47.6	28.7	6.7	29.5	62.8	25.8	73.6	106.2	111.4	57.4	12.6	29.3	1.94
2009 March	169.0	10.9	32.8	46.1	45.4	27.2	6.5	29.4	61.8	26.0	72.3	103.2	108.6	57.0	12.6	29.3	1.90
June	175.1	10.5	33.2	48.2	47.7	28.7	6.8	29.6	63.4	24.7	72.4	106.8	112.8	59.5	13.0	29.5	1.95
Sept	181.3	10.9	35.1	50.3	49.3	28.9	6.8	29.5	64.9	25.2	75.7	110.2	115.5	59.2	12.8	29.4	1.99
Dec	180.9	10.9	34.9	49.5	49.2	29.4	6.9	29.5	64.8	25.3	75.3	108.5	115.3	60.2	13.1	29.4	1.99
2010 March[P]	174.7	10.5	33.5	48.0	47.7	28.2	6.8	29.5	63.9	25.4	72.3	104.5	112.1	60.8	13.4	29.5	1.94
June[P]	176.1	9.8	33.2	48.4	49.5	28.5	6.6	29.6	63.7	23.4	71.1	104.2	115.1	60.6	12.9	29.6	1.94
Sept[P]	185.7	10.1	35.1	51.7	52.5	29.3	7.0	29.6	66.4	23.9	74.2	110.0	120.8	61.8	13.4	29.6	2.02

Notes: The rates for women of all ages, under 20, and 40 and over are based upon the populations of women aged 15–44, 15–19, and 40–44 respectively.
Rates for 2009 are based on mid-2009 population estimates.
Rates for 2010 are based on 2008-based population projections for 2010
irth rates and the standardised mean age of mother for 2002-2008 have been calculated using revised mid-2002 to mid-2008 population estimates which were published on 13 May 2010. Consequently, some figures may differ slightly from those published previously.
Figures may not sum due to rounding.

1 Unstandardised and therefore takes no account of the age structure of the population.
2 Standardised to take account of the age structure of the population.This measure is more appropriate for use when analysing trends or making comparisons between different geographies.
3 TFR (total fertility rate) is the number of children that would be born to a woman if current patterns of fertility persisted throughout her childbearing life. It is sometimes called the TPFR (total period fertility rate).
4 Births per 1,000 women in the age-group; all quarterly age-specific fertility rates are adjusted for days in the quarter. They are not adjusted for seasonality.
P Provisional.

Source: Office for National Statistics

Table 4.1 **Conceptions by age of woman at conception, 1990-2009**

England and Wales — Residents

Year and quarter	Age of woman at conception								
	All ages	Under 16	Under 18	Under 20	20-24	25-29	30-34	35-39	40 and over
	(a) numbers (thousands)								
1990	871.5	8.1	44.8	113.3	244.5	284.2	161.4	56.0	12.0
1991	853.7	7.5	40.1	101.6	233.3	281.5	167.5	57.6	12.1
1992	828.0	7.2	37.6	93.4	215.9	274.9	172.0	59.6	12.2
1993[P]	819.0	7.3	35.8	87.2	203.6	271.7	181.0	63.0	12.6
1994	801.6	7.8	36.1	85.4	190.4	261.8	185.0	66.2	12.9
1995	790.3	8.1	37.9	86.6	181.1	250.3	190.3	68.7	13.2
1996	816.9	8.9	43.5	94.9	179.8	252.6	200.0	75.5	14.1
1997	800.4	8.3	43.4	96.0	167.3	242.6	200.9	78.9	14.7
1998	797.0	8.5	44.1	101.6	163.3	232.4	201.4	82.9	15.4
1999	774.0	7.9	42.0	98.8	157.6	218.5	197.1	86.0	16.0
2000	767.0	8.1	41.3	97.7	159.0	209.3	195.3	88.7	17.0
2001	763.7	7.9	41.0	96.0	161.6	199.3	196.7	92.2	17.8
2002	787.0	7.9	42.0	97.1	167.8	199.4	204.3	98.9	19.6
2003	806.8	8.0	42.2	98.6	175.3	199.8	209.0	103.1	20.9
2004	826.8	7.6	42.2	101.3	181.3	205.1	209.6	106.8	22.8
2005	841.8	7.9	42.3	102.3	185.5	211.3	209.2	110.0	23.6
2006	870.0	7.8	41.8	103.1	191.2	222.2	212.4	115.4	25.5
2007	895.9	8.2	43.0	106.3	198.7	234.8	211.5	118.0	26.5
2008	888.6	7.6	41.4	103.3	198.5	237.8	207.1	115.6	26.5
2009[P]	896.3	7.2	38.3	97.9	199.5	242.2	213.3	116.5	26.8
1996 March	206.3	2.3	10.9	24.2	47.3	64.0	49.2	18.3	3.4
June	200.8	2.3	10.9	23.7	44.6	61.9	48.7	18.2	3.6
Sept	202.6	2.1	10.5	22.6	43.1	63.2	50.8	19.2	3.6
Dec	207.2	2.1	11.2	24.2	44.9	63.5	51.2	19.8	3.6
1997 March	194.1	2.0	10.6	23.2	41.6	59.4	47.7	18.6	3.6
June	198.5	2.2	11.0	23.9	41.8	59.9	49.8	19.5	3.8
Sept	199.2	2.0	10.4	23.3	40.4	60.7	51.2	19.9	3.6
Dec	208.6	2.1	11.4	25.6	43.5	62.6	52.2	20.8	3.8
1998 March	196.5	2.1	11.2	25.3	41.1	57.7	48.9	19.9	3.6
June	196.0	2.1	11.0	25.3	40.5	56.8	49.0	20.5	3.8
Sept	200.8	2.1	10.7	24.7	40.0	59.1	51.9	21.1	3.9
Dec	203.7	2.1	11.2	26.3	41.7	58.9	51.5	21.3	4.0
1999 March	191.5	1.9	10.4	24.9	39.6	54.3	48.4	20.6	3.8
June	190.4	2.0	10.5	24.4	39.1	53.8	47.9	21.2	4.1
Sept	194.0	2.0	10.4	24.1	38.4	54.7	50.7	22.1	4.1
Dec	198.0	2.1	10.8	25.4	40.5	55.6	50.2	22.2	4.1
2000 March	193.1	2.0	10.5	25.1	40.4	53.2	48.3	21.9	4.2
June	188.7	2.1	10.4	24.3	39.3	51.5	47.5	21.8	4.3
Sept	190.0	2.1	10.0	23.5	38.4	52.0	49.7	22.2	4.2
Dec	195.2	2.0	10.4	24.7	40.9	52.7	49.8	22.7	4.3
2001 March	189.2	1.9	10.2	24.3	40.4	50.0	47.8	22.3	4.4
June	187.4	2.1	10.2	24.0	39.8	48.8	47.7	22.8	4.4
Sept	189.3	1.9	10.0	23.1	39.2	49.5	49.9	23.2	4.4
Dec	197.9	2.0	10.6	24.6	42.3	51.1	51.3	23.9	4.7
2002 March	191.6	1.9	10.3	24.1	41.3	48.8	49.0	23.7	4.6
June	190.4	2.0	10.5	24.2	40.7	48.2	48.8	23.8	4.8
Sept	197.4	2.0	10.2	23.4	41.4	50.2	52.4	25.2	4.9
Dec	207.6	2.0	11.0	25.4	44.4	52.3	54.2	26.2	5.2

Notes: Conception figures are estimates derived from birth registrations and abortion notifications.
Rates for women of all ages, under 16, under 18, under 20 and 40 and over are based on the population of women aged 15-44, 13-15, 15-17, 15-19 and 40-44 respectively.
Revised mid–2002 to mid–2008 population estimates published on 13 May 2010 have been used in the calculation of conception rates for those years so figures may therefore differ from those published previously.
For a quarterly analysis of conceptions to women under 18 for local authority areas see the National Statistics website www.statistics.gov.uk/statbase/product.asp?vlnk=15055

1 Figures for conceptions by age for the March, June, September and December quarters of 2009 exclude maternities relating to births in 2010 where the mother's age was not recorded.
2 Provisional quarterly rates for March 2009 are calculated using mid-2008 population estimates and 2008 based population projections for mid-2009.
3 Provisional quarterly rates for June 2009 are calculated using mid-2008 and mid-2009 population estimates.
4 Provisional quarterly rates for September and December 2009 are calculated using mid-2009 population estimates and 2008 based population projections for mid-2010.
P Provisional

Source: Office for National Statistics (ONS)

Table 4.1 continued **Conceptions by age of woman at conception, 1990-2009**

England and Wales — Residents

Year and quarter		Age of woman at conception								
		All ages	Under 16	Under 18	Under 20	20-24	25-29	30-34	35-39	40 and over
2003	March	198.2	1.9	10.5	24.5	42.9	49.4	51.2	25.2	4.9
	June	198.5	2.1	10.8	24.7	43.2	49.1	51.1	25.2	5.2
	Sept	200.1	2.0	10.2	23.7	43.1	49.3	52.8	26.1	5.2
	Dec	210.0	2.0	10.7	25.7	46.1	52.0	54.0	26.7	5.6
2004	March	207.9	2.0	10.9	26.2	45.9	51.1	52.6	26.6	5.6
	June	200.1	1.9	10.6	25.0	43.7	49.3	50.4	25.9	5.7
	Sept	203.6	1.8	10.0	24.0	44.1	50.7	52.7	26.6	5.6
	Dec	215.2	1.9	10.8	26.1	47.7	54.0	54.0	27.6	5.8
2005	March	204.6	1.9	10.4	25.1	45.4	50.8	51.0	26.6	5.7
	June	204.7	2.0	10.5	25.1	45.2	51.0	50.7	26.9	5.8
	Sept	210.9	2.0	10.4	25.3	45.6	53.3	53.1	27.5	6.0
	Dec	221.7	2.0	11.0	26.8	49.3	56.2	54.3	29.1	6.0
2006	March	214.0	1.8	10.2	25.4	47.5	54.2	52.4	28.3	6.2
	June	212.6	2.1	10.6	25.7	46.9	53.8	51.4	28.3	6.5
	Sept	215.1	2.0	10.0	24.7	46.3	55.3	53.6	28.9	6.4
	Dec	228.2	2.0	11.0	27.3	50.6	58.9	55.1	29.9	6.5
2007	March	221.6	2.0	10.8	26.7	49.4	57.0	52.7	29.3	6.5
	June	221.3	2.1	10.9	26.9	49.3	57.5	52.0	29.0	6.5
	Sept	222.7	2.0	10.4	25.7	48.6	58.9	53.0	29.8	6.7
	Dec	230.3	2.0	10.9	27.0	51.3	61.4	53.9	29.9	6.8
2008	March	224.3	2.0	10.7	26.9	49.9	59.3	52.4	29.2	6.7
	June	216.3	2.0	10.6	26.0	48.8	57.2	49.6	28.1	6.5
	Sept	221.4	1.8	9.9	24.7	48.9	59.7	52.2	29.2	6.7
	Dec	226.6	1.8	10.2	25.6	51.0	61.6	52.8	29.1	6.5
2009	March[1,P]	224.1	1.9	9.8	25.2	50.2	60.2	52.6	29.3	6.7
	June[1,P]	222.0	2.0	10.0	25.3	49.7	59.4	51.8	29.0	6.8
	Sept[1,P]	220.5	1.7	9.2	23.3	48.5	59.7	53.6	28.9	6.5
	Dec[1,P]	229.7	1.7	9.3	24.2	51.1	63.0	55.2	29.4	6.8
		(b) rates (conceptions per thousand women in age-group)								
1990		79.2	9.5	47.7	68.0	124.0	138.0	89.7	33.6	6.6
1991		77.7	8.9	44.6	64.1	120.2	135.1	90.1	34.4	6.6
1992		76.3	8.4	43.5	61.9	113.9	132.0	90.1	35.2	6.9
1993		76.2	8.1	42.4	59.7	110.5	131.7	92.5	36.6	7.4
1994		74.8	8.3	41.9	58.7	107.3	128.3	92.1	37.6	7.6
1995		73.8	8.6	41.9	58.7	105.8	124.8	92.8	38.1	7.9
1996		76.2	9.5	46.3	63.2	110.1	127.6	96.3	40.7	8.4
1997		74.6	8.9	45.9	62.6	107.2	124.7	96.2	41.4	8.7
1998		74.2	9.0	47.1	65.1	107.7	122.2	96.8	42.4	8.9
1999		71.9	8.3	45.1	63.1	103.9	118.0	95.3	42.9	9.1
2000		70.9	8.3	43.9	62.5	103.2	115.7	95.3	43.2	9.4
2001		70.3	8.0	42.7	60.8	102.5	114.2	96.7	44.3	9.6
2002		72.2	7.9	42.9	60.6	104.4	119.0	101.7	47.0	10.3
2003		73.7	7.9	42.3	59.9	107.1	122.2	106.1	49.1	10.7
2004		75.2	7.5	41.8	60.3	108.8	125.3	109.7	51.0	11.4
2005		76.0	7.8	41.5	60.0	108.6	125.9	112.1	53.2	11.5
2006		78.3	7.8	40.9	60.2	109.3	129.6	117.7	56.3	12.3
2007		80.5	8.3	42.0	61.7	111.4	133.5	122.0	58.2	12.6
2008		79.9	7.8	40.7	60.1	108.7	133.2	121.7	58.1	12.6
2009[P]		80.9	7.5	38.3	57.3	108.5	133.8	125.9	60.1	12.8
1996	March	77.4	10.0	47.5	65.4	114.4	129.3	95.8	40.1	8.1
	June	75.3	9.8	46.9	63.7	109.1	125.6	94.6	39.7	8.6
	Sept	75.2	9.1	44.4	59.8	105.6	127.3	97.4	41.1	8.5
	Dec	76.9	9.0	47.3	63.7	111.2	128.4	97.9	42.0	8.5
1997	March	73.4	8.6	45.5	61.8	106.3	123.0	92.8	40.0	8.5
	June	74.2	9.4	46.8	62.6	106.7	123.2	95.7	41.3	8.9
	Sept	73.7	8.5	44.0	60.2	103.0	124.2	97.4	41.4	8.4
	Dec	77.1	8.9	47.9	65.7	111.8	128.7	99.4	43.0	8.9
1998	March	74.3	9.1	48.4	66.1	108.8	121.9	95.2	41.8	8.5
	June	73.2	9.0	47.2	65.1	106.7	119.3	94.5	42.3	8.9
	Sept	74.2	8.9	45.5	62.9	104.6	123.7	99.1	42.7	9.0
	Dec	75.2	8.9	47.4	66.8	109.0	124.1	98.5	42.8	9.2
1999	March	72.2	8.0	45.3	64.5	105.9	117.8	94.6	42.0	8.8
	June	71.0	8.6	45.0	62.5	103.3	116.3	92.8	42.5	9.3
	Sept	71.4	8.1	44.2	61.1	100.2	117.6	97.3	43.5	9.1
	Dec	72.8	8.5	45.7	64.3	105.4	120.1	96.5	43.6	9.2

See notes on first page of table

Table 4.1 continued **Conceptions by age of woman at conception, 1990-2009**

England and Wales

Residents

Year and quarter		Age of woman at conception								
		All ages	Under 16	Under 18	Under 20	20-24	25-29	30-34	35-39	40 and over
2000	March	71.9	8.5	45.2	64.6	106.0	117.1	94.5	43.4	9.4
	June	70.2	8.5	44.5	62.5	102.9	114.0	93.1	42.9	9.6
	Sept	69.8	8.4	42.0	59.9	98.8	114.9	96.5	42.9	9.3
	Dec	71.6	8.0	43.6	62.6	104.8	117.4	97.0	43.8	9.4
2001[R]	March	70.7	7.8	43.3	62.7	104.8	114.5	95.0	43.7	9.7
	June	69.2	8.4	42.8	61.0	101.4	111.6	94.0	44.0	9.5
	Sept	69.1	7.7	41.1	57.9	98.4	113.1	97.6	44.2	9.3
	Dec	72.1	8.1	43.5	61.5	105.6	117.9	100.5	45.4	10.0
2002	March	71.3	7.7	43.0	61.5	105.0	116.3	98.5	45.8	9.9
	June	70.1	8.1	43.0	60.6	101.8	114.7	97.2	45.5	10.2
	Sept	71.8	7.7	41.3	57.7	102.0	119.2	103.7	47.6	10.2
	Dec	75.5	8.0	44.2	62.3	108.8	124.8	107.7	49.5	10.7
2003	March	73.6	7.8	42.9	61.0	107.2	121.4	104.7	48.6	10.3
	June	72.8	8.3	43.4	60.4	106.1	120.1	103.7	48.1	10.8
	Sept	72.5	7.9	40.6	56.9	104.2	119.6	106.7	49.3	10.5
	Dec	76.0	7.8	42.6	61.4	110.9	126.1	109.9	50.5	11.2
2004	March	76.2	7.8	43.4	63.1	111.4	125.5	109.4	51.1	11.4
	June	73.2	7.7	42.2	60.0	105.7	121.2	105.6	49.8	11.5
	Sept	73.6	7.1	39.2	56.7	104.9	122.7	110.0	50.6	11.1
	Dec	77.7	7.4	42.4	61.4	112.8	130.1	113.3	52.8	11.4
2005	March	75.1	7.6	41.5	60.0	108.7	123.9	109.9	51.9	11.4
	June	74.2	8.0	41.2	59.1	106.5	122.2	108.6	52.0	11.4
	Sept	75.5	7.8	40.6	59.0	105.6	125.7	113.4	52.8	11.6
	Dec	79.3	7.9	42.8	62.4	113.4	131.8	116.9	55.9	11.5
2006	March	78.2	7.1	40.5	60.3	111.0	129.2	116.3	55.7	12.2
	June	76.7	8.2	41.4	60.3	107.8	126.1	113.7	55.3	12.5
	Sept	76.8	7.7	38.8	57.2	104.6	127.5	118.3	56.0	12.1
	Dec	81.4	8.1	42.8	63.0	113.9	135.1	122.8	58.2	12.2
2007	March	80.8	8.1	43.0	63.0	113.2	132.7	121.3	58.4	12.6
	June	79.7	8.7	42.8	62.7	111.2	131.5	119.7	57.2	12.5
	Sept	79.4	8.2	40.1	59.1	107.9	132.7	121.5	58.5	12.6
	Dec	82.1	8.3	42.2	62.3	113.1	137.7	124.1	59.0	12.8
2008	March	81.1	8.1	42.3	62.9	110.8	134.3	123.1	58.6	12.7
	June	78.2	8.1	41.8	60.9	107.7	129.2	117.0	56.7	12.5
	Sept	79.2	7.6	38.8	57.4	106.3	132.7	122.1	58.6	12.7
	Dec	81.2	7.6	40.0	59.5	110.8	136.5	123.7	58.7	12.4
2009	March[1,2,P]	81.9	7.8	39.5	59.7	111.0	135.4	125.7	60.7	12.9
	June[1,3,P]	80.3	8.2	40.3	59.4	108.5	131.9	122.5	59.8	13.0
	Sept[1,4,P]	78.9	6.9	36.5	54.2	104.4	130.3	125.3	59.3	12.4
	Dec[1,4,P]	82.2	7.0	37.2	56.5	109.4	136.4	128.5	60.9	13.0
		(c) percentage terminated by abortion								
1990		19.9	50.8	41.1	35.7	22.3	13.5	13.8	23.1	43.2
1991		19.4	51.1	39.9	34.5	22.2	13.4	13.7	22.0	41.6
1992		19.3	48.6	39.1	33.9	22.3	13.9	13.9	22.2	41.5
1993		19.2	49.8	39.2	34.3	22.8	13.9	13.5	21.5	40.2
1994		19.5	50.3	39.8	34.7	23.4	14.3	13.6	21.1	40.9
1995		19.7	47.6	38.7	34.6	24.2	14.8	13.6	20.7	38.0
1996		20.8	49.2	40.0	36.2	25.7	15.6	14.1	21.2	37.6
1997		21.3	49.7	40.6	36.8	26.7	16.4	14.2	21.0	38.0
1998		22.3	52.4	42.0	37.8	27.8	17.1	14.9	21.5	37.9
1999		22.6	52.6	43.0	38.6	28.5	17.5	14.7	21.2	37.0
2000		22.7	54.0	44.2	39.3	29.2	17.7	14.5	20.5	35.4
2001		23.2	55.8	45.7	40.4	29.7	18.4	14.6	20.4	34.6
2002		22.5	55.6	45.3	39.9	28.8	17.9	13.9	19.5	34.6
2003		22.5	57.4	45.7	40.2	29.0	17.9	13.6	18.9	34.7
2004		22.4	57.2	45.6	40.1	28.9	18.2	13.2	18.3	33.0
2005		22.2	57.1	46.3	40.3	28.6	18.0	13.2	17.7	32.8
2006		22.3	59.8	48.4	41.9	28.7	18.0	13.1	17.1	31.8
2007		22.0	61.5	50.0	42.6	28.2	17.5	12.7	16.7	31.1
2008		21.8	61.5	49.4	42.4	28.0	17.4	12.8	16.3	30.0
2009[P]		21.0	59.8	48.8	41.9	27.1	16.5	12.4	15.8	29.1
1996	March	21.0	47.2	39.5	36.1	25.5	15.9	14.4	21.8	37.1
	June	21.3	49.2	40.7	36.6	26.5	16.0	14.4	21.8	38.2
	Sept	19.7	50.4	39.1	35.2	24.7	14.9	13.3	20.2	37.3
	Dec	21.1	50.2	40.8	37.0	26.3	15.8	14.2	21.0	37.9

See notes on first page of table

Table 4.1 continued **Conceptions by age of woman at conception, 1990-2009**

England and Wales — Residents

Year and quarter		Age of woman at conception								
		All ages	Under 16	Under 18	Under 20	20-24	25-29	30-34	35-39	40 and over
1997	March	21.4	48.4	39.7	36.0	26.6	16.6	14.5	21.0	38.6
	June	21.7	49.5	40.3	36.7	27.1	16.8	14.6	21.9	39.1
	Sept	20.5	48.1	40.6	36.6	25.8	15.8	13.5	20.7	36.4
	Dec	21.6	52.5	41.6	37.6	27.2	16.5	14.3	20.6	37.8
1998	March	22.3	51.4	41.2	37.3	27.7	17.3	15.2	21.7	37.0
	June	22.8	52.7	42.2	38.2	28.4	17.6	15.3	22.2	38.9
	Sept	21.7	52.5	42.2	37.9	27.3	16.6	14.4	21.3	37.6
	Dec	22.2	53.0	42.3	37.7	28.0	17.0	14.7	21.0	38.2
1999	March	22.3	51.4	42.0	38.0	27.9	17.2	14.7	21.6	36.2
	June	23.0	52.9	43.5	38.6	28.6	18.0	15.5	21.5	37.8
	Sept	22.1	52.7	43.1	38.7	28.5	17.2	14.1	20.6	37.3
	Dec	22.8	53.5	43.6	39.1	29.2	17.7	14.7	21.2	36.6
2000	March	22.9	53.8	44.3	39.6	29.6	17.7	14.5	20.4	35.3
	June	23.2	55.1	44.4	39.2	29.7	18.1	15.1	20.9	35.1
	Sept	22.0	53.2	43.8	38.7	28.2	17.4	14.0	19.8	35.4
	Dec	22.8	54.0	44.1	39.8	29.2	17.5	14.4	20.8	35.9
2001	March	23.4	54.4	44.9	40.2	29.8	18.6	14.8	20.7	34.9
	June	23.8	58.8	47.0	41.1	30.3	18.6	15.3	21.0	36.0
	Sept	22.5	55.0	45.7	40.1	29.2	18.1	13.8	19.9	33.5
	Dec	22.9	54.9	45.2	40.0	29.5	18.1	14.4	20.2	34.1
2002	March	22.9	54.3	44.9	40.2	29.4	18.1	14.1	19.8	35.1
	June	22.9	55.6	45.0	39.4	28.9	18.4	14.5	20.1	34.8
	Sept	21.6	56.1	45.0	39.4	27.8	17.3	13.2	18.7	34.2
	Dec	22.6	56.4	46.3	40.7	29.0	17.8	13.9	19.4	34.5
2003	March	22.8	58.9	46.1	40.2	29.5	17.9	13.8	19.7	34.5
	June	23.1	58.3	46.2	40.9	29.3	18.4	14.2	19.2	36.1
	Sept	21.6	56.9	45.3	39.5	28.0	17.1	13.0	18.0	33.8
	Dec	22.5	55.7	45.0	40.3	29.0	18.1	13.5	18.5	34.5
2004	March	22.7	58.2	45.7	40.2	29.4	18.5	13.4	18.2	32.9
	June	23.0	57.2	46.3	40.8	29.2	18.6	13.7	19.2	33.5
	Sept	21.9	56.8	45.8	40.0	28.4	17.9	12.8	17.8	33.0
	Dec	22.0	56.3	44.5	39.3	28.6	17.8	13.0	18.2	32.5
2005	March	22.5	57.5	47.3	41.1	29.2	18.1	13.1	18.0	32.6
	June	22.7	57.0	45.8	40.3	28.9	18.6	13.9	17.8	33.8
	Sept	21.4	56.2	45.3	39.0	27.5	17.5	12.6	17.2	32.1
	Dec	22.2	57.5	46.9	40.6	28.7	17.8	13.1	17.7	32.7
2006	March	22.5	59.0	47.7	41.6	29.1	18.4	13.0	17.5	31.1
	June	23.1	59.5	49.0	42.5	29.6	18.8	13.9	17.8	31.6
	Sept	21.5	60.4	48.0	41.3	27.7	17.5	12.7	16.3	32.8
	Dec	22.0	60.2	49.1	42.0	28.3	17.4	12.8	16.9	31.7
2007	March	22.7	62.6	50.7	43.2	29.5	18.3	13.0	16.9	31.1
	June	22.5	61.9	50.3	43.1	28.6	18.0	12.8	16.9	31.5
	Sept	21.0	57.9	48.5	41.3	26.9	16.5	12.3	16.0	30.8
	Dec	21.8	63.6	50.4	42.6	28.0	17.2	12.5	16.8	30.8
2008	March	22.6	62.2	50.6	43.8	28.9	17.9	13.1	16.8	31.2
	June	22.4	61.5	49.0	42.3	28.4	18.2	13.2	16.8	29.9
	Sept	21.2	61.7	48.9	41.6	27.3	16.9	12.6	15.6	29.6
	Dec	21.2	60.8	49.0	41.7	27.5	16.6	12.5	16.0	29.1
2009	March[1,P]	21.4	59.0	49.0	41.9	27.7	16.8	12.7	16.0	29.3
	June[1,P]	21.5	60.7	48.9	42.1	27.5	17.2	12.8	16.2	29.0
	Sept[1,P]	20.3	59.5	48.5	41.3	26.1	16.1	12.0	15.6	29.3
	Dec[1,p]	20.7	59.9	49.1	42.3	26.9	16.0	12.3	15.7	29.0

See notes on first page of table

Table 4.2 **Abortions: residents and non-residents; age and gestation (residents only)**

England and Wales

Numbers (thousands) and rates; and percentages for gestation weeks

Year and quarter	All ages			All women (residents)										
				Age group							Gestation weeks (percentages)			
	All[1] women	Residents[1]	Non-[1] residents	Under 16	16–19	20–24	25–29	30–34	35–44	45 and over	Under 9	9–12	13–19	20 and over
	Numbers (thousands)										**Percentages**			
1971	126.8	94.6	32.2	2.3	18.2	24.5	17.3	14.2	15.9	0.5	16.6	57.9	21.8	1.0
1976	129.7	101.9	27.8	3.4	24.0	23.6	19.3	14.6	14.7	0.5	24.8	55.8	15.0	1.1
1981	162.5	128.6	33.9	3.5	31.4	34.3	21.9	18.7	17.6	0.6	31.0	53.4	13.5	1.3
1986	172.3	147.6	24.7	3.9	33.8	45.3	28.7	18.0	17.5	0.4	33.4	53.8	11.5	1.4
1991	179.5	167.4	12.1	3.2	31.1	52.7	38.6	23.4	17.9	0.4	35.2	52.9	10.6	1.2
1996	177.5	167.9	9.6	3.6	28.8	46.4	39.3	28.2	21.1	0.4	40.0	48.7	10.1	1.3
2001	186.3	176.4	9.9	3.7	33.4	48.3	36.5	28.8	25.2	0.5	42.8	45.0	10.6	1.6
2002	185.4	175.9	9.5	3.7	33.0	48.4	35.8	28.5	26.0	0.5	42.2	45.2	11.0	1.6
2003	190.7	181.6	9.1	4.0	34.2	51.1	36.0	28.7	26.9	0.5	43.6	43.7	11.1	1.6
2004	194.5	185.7	8.8	3.8	35.5	52.8	37.8	28.1	27.3	0.5	46.2	41.5	10.8	1.6
2005	194.4	186.4	7.9	3.8	35.3	53.3	38.3	27.8	27.2	0.6	53.6	35.7	9.3	1.4
2006	201.2	193.7	7.4	4.0	37.3	55.3	40.4	28.2	27.9	0.7	54.9	34.3	9.2	1.5
2007	205.6	198.5	7.1	4.4	39.6	57.0	41.7	27.3	27.9	0.7	57.9	31.9	8.8	1.5
2008	202.2	195.3	6.9	4.1	38.6	56.2	41.9	27.0	26.9	0.7	61.6	28.7	8.2	1.5
2009	195.7	189.1	6.6	3.8	36.2	54.7	40.6	26.7	26.2	0.7	64.3	26.3	8.0	1.5
2007 March	55.3	53.3	1.9	1.2	10.8	15.4	11.1	7.3	7.4	0.2	54.1	35.0	9.4	1.6
June	51.2	49.4	1.8	1.1	9.9	14.3	10.3	6.7	6.8	0.2	56.6	32.6	9.2	1.5
Sept	49.9	48.2	1.7	1.0	9.5	13.5	10.2	6.6	7.0	0.2	58.6	31.2	8.8	1.4
Dec	49.2	47.6	1.6	1.1	9.4	13.7	10.0	6.6	6.7	0.2	62.7	28.3	7.6	1.4
2008 March	53.4	51.6	1.8	1.1	10.5	14.8	10.8	7.0	7.2	0.2	58.4	31.0	9.0	1.6
June	52.5	50.8	1.8	1.1	10.1	14.6	10.9	6.9	7.0	0.2	60.8	29.5	8.3	1.4
Sept	48.7	47.0	1.7	1.0	9.2	13.4	10.3	6.5	6.5	0.2	62.9	27.6	8.0	1.4
Dec	47.5	45.9	1.6	1.0	8.8	13.3	9.9	6.5	6.2	0.2	64.8	26.2	7.6	1.4
2009 March	51.8	50.1	1.7	1.1	9.8	14.7	10.6	6.9	6.8	0.2	60.9	28.5	8.9	1.7
June	50.0	48.3	1.7	0.9	9.2	14.1	10.4	6.8	6.6	0.2	64.1	26.8	7.8	1.3
Sept	47.7	46.0	1.7	1.0	8.8	13.1	10.0	6.5	6.5	0.2	64.7	25.9	7.9	1.5
Dec	46.2	44.7	1.5	0.8	8.4	12.9	9.6	6.5	6.3	0.2	67.8	23.7	7.1	1.4
2010 March[P]	52.2	50.4	1.8	1.0	9.6	14.9	10.8	7.2	6.8	0.2	64.2	26.3	8.0	1.5
June[P]	49.5	47.8	1.7	1.0	8.8	14.0	10.2	7.0	6.6	0.2	65.9	25.1	7.5	1.4
Sept[P]	48.1	46.5	1.6	0.9	8.4	13.3	10.2	7.0	6.6	0.2	67.5	23.7	7.3	1.5
Rates (per thousand women residents)														
	ASR[2] (women 15-44)	Crude rate[3] (women 15-44)												
1971	9.9	10.1	:	2.3	13.9	13.1	10.7	10.0	5.6	0.3				
1976	10.2	10.5	:	2.9	16.9	14.2	10.4	9.2	5.3	0.3				
1981	11.9	12.4	:	3.0	19.4	18.6	13.1	10.1	5.9	0.4				
1986	13.0	13.5	:	3.7	22.0	21.9	15.5	10.8	5.1	0.3				
1991	15.0	15.2	:	3.8	24.0	27.1	18.5	12.6	5.1	0.3				
1996	16.0	15.7	:	3.9	24.2	28.4	19.9	13.6	6.0	0.2				
2001	17.0	16.2	:	3.7	26.6	30.6	20.9	14.2	6.4	0.3				
2002	17.0	16.1	:	3.7	25.8	30.1	21.4	14.2	6.5	0.3				
2003	17.5	16.6	:	3.9	26.1	31.2	22.1	14.6	6.6	0.3				
2004	17.8	16.9	:	3.7	26.5	31.9	23.3	14.7	6.7	0.3				
2005	17.8	17.0	:	3.7	26.3	32.0	23.6	14.5	6.6	0.3				
2006	18.3	17.5	:	3.9	27.3	32.5	24.3	15.1	6.8	0.4				
2007	18.6	17.9	:	4.4	28.9	32.6	24.3	15.1	6.7	0.4				
2008	18.2	17.6	:	4.2	27.8	31.6	23.9	15.6	6.5	0.4				
2009	17.5	17.0	:	4.0	26.1	30.0	22.8	15.7	6.4	0.4				
2007 March	20.0	19.2	:	4.7	31.4	35.3	25.6	16.7	7.2	0.4				
June	18.5	17.8	:	4.4	28.8	32.7	23.7	15.5	6.6	0.4				
Sept	18.0	17.4	:	4.2	27.7	30.8	23.3	15.4	6.8	0.4				
Dec	17.8	17.2	:	4.4	27.2	31.1	22.7	15.3	6.5	0.4				
2008 March	19.1	18.5	:	4.7	30.4	32.6	24.1	16.3	7.0	0.4				
June	18.7	18.2	:	4.4	29.3	32.1	24.1	16.0	6.9	0.3				
Sept	17.3	16.9	:	4.0	26.6	29.3	22.6	15.3	6.3	0.4				
Dec	16.9	16.4	:	4.1	25.4	29.0	21.5	15.2	6.1	0.3				
2009 March	18.5	18.1	:	4.4	28.5	31.9	23.5	16.3	6.7	0.4				
June	17.8	17.4	:	4.0	26.7	30.4	22.9	16.0	6.6	0.3				
Sept	16.9	16.6	:	4.1	25.6	28.1	21.9	15.3	6.4	0.4				
Dec	16.4	16.1	:	3.5	24.4	27.6	21.0	15.2	6.3	0.4				
2010 March[P]	18.5	18.2	:	4.2	28.1	31.8	23.3	16.7	6.8	0.4				
June[P]	17.5	17.2	:	4.3	25.6	29.8	21.8	16.2	6.7	0.3				
Sept[P]	17.0	16.8	:	3.7	24.7	28.2	21.8	16.3	6.7	0.3				

Notes: Rates for under 16 and 45 and over are based on female populations aged 13-15 and 45-49 respectively.

1 Includes cases with not stated age and/or gestation week.

2 Rates for all women residents age-standardised to the European population for ages 15-44.

3 Includes incomplete forms that have been returned to practitioners.

P Provisional

Table 5.1 **Period expectation of life at birth and selected ages, UK and constituent countries**

Constituent countries of the United Kingdom

Years

Year	Males								Females							
	At birth	At age 5	20	30	50	60	70	80	At birth	At age 5	20	30	50	60	70	80
United Kingdom																
1981	70.8	66.9	52.3	42.7	24.1	16.3	10.1	5.8	76.8	72.7	57.9	48.2	29.2	20.8	13.3	7.5
1986	71.9	67.8	53.2	43.6	24.9	16.8	10.5	6.0	77.7	73.4	58.6	48.8	29.8	21.2	13.8	7.8
1991	73.2	68.9	54.2	44.7	26.0	17.7	11.1	6.4	78.7	74.3	59.5	49.7	30.6	21.9	14.3	8.2
1996	74.2	69.8	55.1	45.6	26.9	18.5	11.6	6.6	79.4	74.9	60.1	50.3	31.2	22.3	14.5	8.3
2000	75.3	70.9	56.1	46.6	28.0	19.5	12.3	7.0	80.1	75.6	60.8	51.0	31.9	23.0	15.0	8.6
2001	75.6	71.2	56.4	46.9	28.2	19.7	12.5	7.1	80.4	75.8	61.0	51.2	32.1	23.2	15.1	8.7
2002	75.9	71.4	56.6	47.1	28.5	19.9	12.6	7.1	80.5	75.9	61.1	51.3	32.2	23.3	15.2	8.7
2003	76.2	71.7	56.9	47.4	28.7	20.2	12.8	7.3	80.7	76.1	61.3	51.5	32.4	23.4	15.3	8.7
2004	76.5	72.0	57.3	47.7	29.0	20.5	13.1	7.4	80.9	76.4	61.5	51.7	32.6	23.6	15.5	8.8
2005	76.9	72.4	57.6	48.0	29.4	20.8	13.4	7.6	81.3	76.7	61.9	52.0	32.9	23.9	15.8	9.0
2006	77.2	72.7	57.9	48.3	29.6	21.1	13.6	7.7	81.5	76.9	62.0	52.2	33.1	24.1	15.9	9.1
2007	77.4	72.9	58.1	48.5	29.9	21.3	13.8	7.8	81.6	77.1	62.2	52.4	33.2	24.3	16.1	9.2
England and Wales																
1981	71.0	67.1	52.5	42.9	24.3	16.4	10.1	5.8	77.0	72.9	58.1	48.3	29.4	20.9	13.4	7.5
1986	72.1	68.0	53.4	43.8	25.0	16.9	10.5	6.1	77.9	73.6	58.8	49.0	30.0	21.4	13.9	7.9
1991	73.4	69.1	54.4	44.8	26.1	17.8	11.2	6.4	78.9	74.5	59.7	49.9	30.8	22.0	14.4	8.3
1996	74.5	70.1	55.3	45.8	27.1	18.6	11.6	6.6	79.6	75.1	60.2	50.4	31.3	22.5	14.6	8.4
2000	75.6	71.1	56.4	46.8	28.1	19.6	12.3	7.0	80.3	75.8	60.9	51.1	32.0	23.1	15.1	8.6
2001	75.9	71.4	56.7	47.1	28.4	19.9	12.5	7.1	80.5	76.0	61.2	51.3	32.2	23.3	15.2	8.7
2002	76.1	71.6	56.9	47.3	28.6	20.1	12.7	7.2	80.7	76.1	61.3	51.5	32.3	23.4	15.3	8.7
2003	76.4	71.9	57.2	47.6	28.9	20.3	12.9	7.3	80.9	76.3	61.5	51.7	32.5	23.6	15.4	8.8
2004	76.8	72.3	57.5	47.9	29.2	20.6	13.2	7.4	81.1	76.6	61.7	51.9	32.7	23.8	15.6	8.9
2005	77.2	72.7	57.9	48.3	29.6	21.0	13.5	7.6	81.5	76.9	62.0	52.2	33.1	24.1	15.9	9.1
2006	77.4	72.9	58.2	48.5	29.8	21.2	13.7	7.7	81.7	77.1	62.2	52.4	33.2	24.3	16.0	9.2
2007	77.7	73.2	58.4	48.8	30.0	21.4	13.9	7.8	81.8	77.3	62.4	52.6	33.4	24.4	16.2	9.2
England																
1981	71.1	67.1	52.5	42.9	24.3	16.4	10.1	5.8	77.0	72.9	58.2	48.4	29.4	20.9	13.4	7.5
1986	72.2	68.1	53.4	43.8	25.1	17.0	10.6	6.1	77.9	73.6	58.8	49.0	30.0	21.4	13.9	7.9
1991	73.4	69.1	54.4	44.9	26.2	17.8	11.2	6.4	78.9	74.5	59.7	49.9	30.8	22.0	14.4	8.3
1996	74.5	70.1	55.4	45.8	27.1	18.7	11.7	6.6	79.6	75.1	60.3	50.4	31.3	22.5	14.6	8.4
2000	75.6	71.2	56.4	46.9	28.2	19.6	12.4	7.0	80.3	75.8	61.0	51.2	32.0	23.1	15.1	8.6
2001	75.9	71.4	56.7	47.1	28.5	19.9	12.6	7.1	80.6	76.0	61.2	51.4	32.2	23.3	15.2	8.7
2002	76.1	71.7	56.9	47.4	28.7	20.1	12.7	7.2	80.7	76.1	61.3	51.5	32.4	23.4	15.3	8.7
2003	76.5	72.0	57.2	47.6	28.9	20.4	12.9	7.3	80.9	76.4	61.5	51.7	32.6	23.6	15.4	8.8
2004	76.8	72.3	57.6	48.0	29.2	20.7	13.2	7.4	81.1	76.6	61.7	51.9	32.8	23.8	15.6	8.9
2005	77.2	72.7	57.9	48.3	29.6	21.0	13.5	7.6	81.5	76.9	62.1	52.3	33.1	24.1	15.9	9.1
2006	77.5	73.0	58.2	48.6	29.8	21.2	13.7	7.7	81.7	77.1	62.3	52.4	33.3	24.3	16.0	9.2
2007	77.7	73.2	58.4	48.8	30.1	21.5	13.9	7.9	81.9	77.3	62.4	52.6	33.4	24.4	16.2	9.2
Wales																
1981	70.4	66.5	51.9	42.2	23.6	15.8	9.7	5.6	76.4	72.3	57.5	47.7	28.9	20.5	13.1	7.4
1986	71.6	67.5	52.8	43.2	24.6	16.6	10.3	6.0	77.5	73.3	58.5	48.7	29.7	21.1	13.7	7.8
1991	73.1	68.8	54.1	44.6	25.8	17.6	11.0	6.4	78.8	74.3	59.5	49.7	30.6	21.8	14.3	8.3
1996	73.8	69.4	54.7	45.3	26.6	18.2	11.3	6.4	79.1	74.6	59.7	49.9	30.9	22.1	14.4	8.3
2000	74.8	70.4	55.7	46.2	27.6	19.1	12.0	6.8	79.7	75.2	60.4	50.6	31.5	22.6	14.7	8.4
2001	75.3	70.8	56.0	46.6	28.0	19.5	12.3	7.0	80.0	75.4	60.6	50.8	31.7	22.8	14.9	8.5
2002	75.5	70.9	56.2	46.8	28.2	19.7	12.4	7.1	80.1	75.5	60.7	50.9	31.8	22.9	15.0	8.6
2003	75.8	71.2	56.5	47.0	28.4	19.9	12.6	7.2	80.3	75.7	60.9	51.1	32.0	23.1	15.1	8.6
2004	76.1	71.6	56.8	47.3	28.7	20.2	12.8	7.3	80.6	76.0	61.1	51.3	32.2	23.3	15.2	8.7
2005	76.6	72.0	57.3	47.7	29.2	20.6	13.2	7.6	80.9	76.3	61.5	51.6	32.6	23.7	15.5	8.9
2006	76.7	72.1	57.4	47.8	29.3	20.8	13.4	7.6	81.1	76.5	61.6	51.8	32.7	23.8	15.7	9.0
2007	76.9	72.3	57.5	48.0	29.5	21.0	13.5	7.7	81.2	76.6	61.8	51.9	32.9	23.9	15.9	9.1
Scotland																
1981	69.1	65.2	50.6	41.1	22.9	15.4	9.6	5.5	75.3	71.2	56.4	46.7	27.9	19.7	12.7	7.2
1986	70.2	66.0	51.4	41.9	23.5	15.8	9.9	5.7	76.2	71.9	57.1	47.3	28.4	20.1	13.0	7.5
1991	71.4	67.1	52.5	43.0	24.6	16.6	10.4	6.1	77.1	72.7	57.9	48.1	29.2	20.7	13.5	7.9
1996	72.2	67.8	53.1	43.7	25.3	17.3	10.9	6.3	77.9	73.3	58.5	48.8	29.8	21.2	13.8	8.0
2000	73.1	68.6	53.9	44.6	26.3	18.2	11.5	6.6	78.6	74.0	59.2	49.4	30.5	21.8	14.1	8.1
2001	73.3	68.8	54.2	44.8	26.6	18.4	11.7	6.8	78.8	74.2	59.4	49.6	30.7	22.0	14.3	8.2
2002	73.5	69.0	54.3	45.0	26.7	18.6	11.8	6.8	78.9	74.3	59.5	49.7	30.8	22.1	14.4	8.2
2003	73.8	69.3	54.6	45.2	27.0	18.8	12.0	6.9	79.1	74.5	59.7	49.9	30.9	22.2	14.5	8.3
2004	74.2	69.7	55.0	45.6	27.3	19.1	12.2	7.0	79.3	74.7	59.9	50.1	31.1	22.4	14.7	8.4
2005	74.6	70.1	55.4	45.9	27.7	19.4	12.5	7.2	79.6	75.0	60.2	50.4	31.4	22.7	14.9	8.5
2006	74.8	70.3	55.5	46.1	27.9	19.6	12.6	7.2	79.7	75.1	60.3	50.5	31.5	22.8	15.0	8.6
2007	75.0	70.4	55.7	46.3	28.1	19.9	12.8	7.3	79.9	75.2	60.4	50.6	31.7	22.9	15.1	8.6
Northern Ireland																
1981	69.2	65.4	50.9	41.5	23.2	15.6	9.7	5.8	75.5	71.6	56.8	47.1	28.3	20.0	12.8	7.3
1986	70.9	66.8	52.2	42.7	24.2	16.4	10.4	6.2	77.1	72.9	58.1	48.3	29.3	20.8	13.4	7.8
1991	72.6	68.2	53.6	44.1	25.5	17.3	11.0	6.4	78.4	74.0	59.2	49.4	30.3	21.6	14.2	8.3
1996	73.8	69.4	54.7	45.3	26.6	18.2	11.4	6.6	79.2	74.7	59.9	50.0	30.9	22.1	14.4	8.4
2000	74.8	70.4	55.7	46.2	27.6	19.1	11.9	6.6	79.8	75.2	60.4	50.6	31.5	22.6	14.6	8.2
2001	75.2	70.7	56.1	46.6	27.9	19.4	12.3	6.9	80.1	75.6	60.7	50.9	31.8	22.9	14.9	8.4
2002	75.6	71.1	56.4	46.9	28.2	19.7	12.4	7.0	80.4	75.9	61.0	51.2	32.0	23.1	15.1	8.5
2003	75.8	71.4	56.7	47.1	28.4	19.9	12.6	7.2	80.6	76.0	61.1	51.3	32.2	23.3	15.2	8.6
2004	76.0	71.6	56.9	47.4	28.7	20.2	12.8	7.3	80.8	76.3	61.4	51.6	32.5	23.5	15.4	8.7
2005	76.1	71.6	57.0	47.5	28.9	20.4	13.0	7.3	81.0	76.4	61.6	51.8	32.7	23.7	15.6	8.8
2006	76.2	71.7	57.1	47.6	29.1	20.6	13.1	7.3	81.2	76.6	61.8	52.0	32.8	23.9	15.7	8.9
2007	76.3	71.8	57.2	47.7	29.2	20.7	13.2	7.3	81.2	76.6	61.8	52.0	32.9	24.0	15.7	8.9

Note: All figures are based on a three-year period, so that for instance 2003 represents 2002-2004. The population estimates used to calculate these life expectancies are the latest available at time of publication of the 2006-2008 interim life tables (21 October 2009). All figures are based on death registrations. A minor methodological change was introducted for the 2006 figures to ensure consistency with population estimates of the very elderly for England and Wales. The effect on calculated life expectancies is marginal.

Table 6.1 **Deaths: age and sex**

England and Wales

Numbers (thousands) and rates

Year and quarter	All ages	Age group												
		Under 1[1]	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65-74	75-84	85 and over
Numbers (thousands)														
Males														
1976	300.1	4.88	0.88	0.68	0.64	1.66	1.66	3.24	5.93	20.4	52.0	98.7	80.3	29.0
1981	289.0	4.12	0.65	0.45	0.57	1.73	1.58	3.18	5.54	16.9	46.9	92.2	86.8	28.5
1986	287.9	3.72	0.57	0.33	0.38	1.43	1.75	3.10	5.77	14.4	43.6	84.4	96.2	32.2
1991	277.6	2.97	0.55	0.34	0.35	1.21	1.76	3.69	6.16	13.3	34.9	77.2	95.8	39.3
1996	268.7	2.27	0.44	0.24	0.29	0.93	1.41	4.06	5.84	13.6	30.1	71.0	90.7	47.8
2001	252.4	1.81	0.32	0.19	0.28	0.88	1.27	3.63	6.07	13.3	27.5	57.5	87.0	52.7
2002	254.4	1.83	0.33	0.20	0.29	0.91	1.31	3.67	6.26	13.0	27.8	56.6	88.5	53.7
2003	254.4	1.83	0.31	0.20	0.26	0.85	1.35	3.48	6.44	12.7	28.3	55.1	89.6	54.1
2004	245.2	1.81	0.30	0.17	0.25	0.83	1.26	3.28	6.36	12.4	27.1	52.7	87.4	51.3
2005	243.9	1.88	0.30	0.17	0.27	0.86	1.22	3.15	6.36	12.2	27.3	51.0	84.7	54.5
2006	240.9	1.86	0.29	0.19	0.26	0.84	1.21	3.13	6.32	12.3	27.6	48.9	81.9	56.2
2007	240.8	1.89	0.34	0.18	0.23	0.80	1.22	3.14	6.26	11.9	27.5	47.8	80.6	58.9
2008	243.0	1.92	0.28	0.18	0.19	0.78	1.26	3.09	6.42	12.3	27.1	47.9	79.8	61.9
2009	238.1	1.86	0.25	0.15	0.20	0.78	1.12	2.97	6.47	12.0	26.6	46.7	77.1	61.9
Females														
1976	298.5	3.46	0.59	0.45	0.42	0.62	0.67	1.94	4.04	12.8	29.6	67.1	104.7	72.1
1981	288.9	2.90	0.53	0.30	0.37	0.65	0.64	1.82	3.74	10.5	27.2	62.8	103.6	73.9
1986	293.3	2.59	0.49	0.25	0.27	0.56	0.67	1.65	3.83	8.8	25.8	58.4	106.5	83.6
1991	292.5	2.19	0.44	0.25	0.22	0.46	0.64	1.73	3.70	8.4	21.3	54.2	103.3	95.7
1996	291.5	1.69	0.32	0.18	0.20	0.43	0.51	1.85	3.66	8.9	18.2	50.2	96.7	108.7
2001	277.9	1.43	0.27	0.19	0.18	0.38	0.47	1.59	3.77	8.9	17.6	40.5	88.8	113.9
2002	281.0	1.34	0.24	0.16	0.20	0.39	0.47	1.60	3.77	8.7	17.8	39.6	90.2	116.4
2003	284.7	1.48	0.28	0.16	0.21	0.37	0.49	1.64	3.88	8.6	18.0	39.0	92.7	118.0
2004	269.0	1.46	0.25	0.14	0.17	0.41	0.49	1.54	3.86	8.1	17.6	37.0	88.4	109.5
2005	269.1	1.37	0.22	0.13	0.19	0.38	0.48	1.48	3.81	8.2	17.8	35.9	86.3	112.9
2006	261.7	1.51	0.27	0.14	0.17	0.38	0.44	1.38	3.80	8.1	17.9	34.5	81.2	111.9
2007	263.3	1.46	0.24	0.12	0.19	0.36	0.45	1.36	3.79	8.1	18.2	33.9	79.4	115.8
2008	266.1	1.45	0.27	0.14	0.14	0.35	0.46	1.45	3.81	8.3	18.2	33.9	77.8	119.8
2009	253.3	1.46	0.24	0.13	0.17	0.33	0.43	1.40	3.65	8.0	17.7	32.7	72.9	114.1
Rates (deaths per 1,000 population in each age group)														
Males														
1976	12.5	16.2	0.65	0.34	0.31	0.88	0.96	0.92	2.09	6.97	19.6	50.3	116.4	243.2
1981	12.0	12.6	0.53	0.27	0.29	0.82	0.83	0.89	1.83	6.11	17.7	45.6	105.2	226.5
1986	11.8	11.0	0.44	0.21	0.23	0.72	0.83	0.88	1.68	5.27	16.6	42.8	101.2	215.4
1991	11.2	8.3	0.40	0.21	0.23	0.72	0.89	0.94	1.76	4.56	13.9	38.1	93.1	205.6
1996	10.7	6.8	0.32	0.14	0.18	0.60	0.85	1.01	1.67	4.06	11.9	34.5	85.0	198.8
2001	9.9	5.9	0.25	0.11	0.16	0.53	0.80	0.97	1.56	3.89	10.0	28.0	74.0	186.4
2002	9.9	6.0	0.26	0.12	0.16	0.53	0.82	1.00	1.58	3.89	9.7	27.4	73.6	188.1
2003	9.8	5.7	0.25	0.12	0.15	0.49	0.82	0.97	1.61	3.82	9.6	26.4	72.9	191.1
2004	9.4	5.5	0.25	0.11	0.14	0.47	0.73	0.93	1.58	3.72	9.0	25.1	70.0	176.0
2005	9.3	5.7	0.24	0.10	0.16	0.48	0.69	0.89	1.56	3.61	8.9	24.1	67.4	172.1
2006	9.1	5.4	0.23	0.12	0.15	0.46	0.67	0.89	1.55	3.59	8.8	23.2	64.6	163.4
2007	9.1	5.3	0.26	0.12	0.13	0.43	0.65	0.89	1.54	3.42	8.7	22.5	62.8	161.0
2008	9.1	5.3	0.21	0.12	0.11	0.43	0.65	0.87	1.59	3.45	8.6	22.0	61.4	161.4
2009	8.8	5.1	0.18	0.10	0.12	0.43	0.58	0.83	1.63	3.29	8.4	21.0	58.5	155.0
2007 March	10.0	5.3	0.28	0.12	0.14	0.47	0.65	0.92	1.55	3.68	9.2	24.4	69.9	184.3
June	8.8	5.8	0.26	0.12	0.14	0.44	0.65	0.90	1.50	3.39	8.6	22.1	60.7	152.3
Sept	8.2	5.1	0.22	0.09	0.13	0.40	0.61	0.88	1.49	3.18	8.1	20.7	57.1	140.5
Dec	9.3	5.2	0.28	0.13	0.12	0.43	0.69	0.88	1.61	3.45	9.0	22.8	63.6	167.3

Notes: Figures represent the numbers of deaths registered in each year up to 1992 and the numbers of deaths occurring in each year from 1993 to 2001.
From 2002 onwards figures relate to the numbers of deaths registered in each year.
Death rates for 2009 have been updated using the 2009 population estimates published on 24 June 2010.
Death rates for 2002 to 2008 have been calculated using revised mid-2002 to mid-2008 population estimates which were published on 13 May 2010.
Numbers of deaths by age group may not sum to all ages due to rounding.

1 Rates per 1,000 live births.
2 Death rates for 2010 are based on the 2008-based population projections for 2010.
P Provisional

Source: Office for National Statistics.

Table 6.1 continued **Deaths: age and sex**

England and Wales

Numbers (thousands) and rates

Year and quarter		All ages	Age group											
			Under 1[1]	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65-74	75-84	85 and over
2008	March	9.7	5.4	0.21	0.12	0.11	0.37	0.59	0.84	1.57	3.66	9.0	23.4	65.7	177.7
	June	8.9	5.3	0.22	0.12	0.12	0.45	0.61	0.87	1.59	3.40	8.5	21.7	60.0	155.2
	Sept	8.2	5.1	0.18	0.13	0.10	0.44	0.70	0.88	1.57	3.27	8.1	20.4	55.0	139.0
	Dec	9.5	5.4	0.25	0.09	0.12	0.46	0.70	0.89	1.63	3.48	8.6	22.7	64.7	173.7
2009	March	9.9	5.4	0.18	0.06	0.13	0.43	0.57	0.82	1.61	3.43	9.0	22.9	67.1	182.7
	June	8.4	5.3	0.18	0.10	0.10	0.41	0.56	0.79	1.58	3.12	8.2	20.3	55.6	144.3
	Sept	8.0	5.0	0.16	0.08	0.10	0.39	0.55	0.81	1.57	3.16	7.9	19.4	52.8	134.8
	Dec	9.0	4.8	0.20	0.14	0.15	0.49	0.65	0.88	1.74	3.47	8.5	21.4	58.6	158.7
2010	March[P]	9.6	4.9	0.21	0.12	0.10	0.31	0.54	0.77	1.58	3.37	8.7	22.0	62.1	173.0
	June[P]	8.5	4.8	0.19	0.08	0.10	0.36	0.54	0.73	1.48	3.11	8.2	20.1	54.6	143.7
	Sept[P]	8.1	4.6	0.19	0.09	0.09	0.34	0.60	0.76	1.49	3.12	7.8	19.2	51.4	133.2
Females															
1976		11.8	12.2	0.46	0.24	0.21	0.35	0.40	0.56	1.46	4.30	10.1	26.0	74.6	196.6
1981		11.3	9.4	0.46	0.19	0.19	0.32	0.35	0.52	1.26	3.80	9.5	24.1	66.2	178.2
1986		11.4	8.0	0.40	0.17	0.17	0.29	0.33	0.47	1.12	3.24	9.2	23.4	62.5	169.4
1991		11.2	6.4	0.33	0.16	0.15	0.29	0.33	0.44	1.05	2.87	8.2	21.8	58.7	161.6
1996		11.0	5.3	0.25	0.10	0.12	0.29	0.31	0.46	1.04	2.63	7.1	20.6	55.8	158.9
2001		10.4	4.9	0.22	0.12	0.11	0.24	0.30	0.42	0.96	2.57	6.3	17.4	50.1	155.0
2002		10.5	4.6	0.20	0.10	0.12	0.24	0.29	0.43	0.94	2.54	6.0	17.0	50.5	159.6
2003		10.6	4.9	0.24	0.10	0.12	0.22	0.30	0.45	0.96	2.52	5.9	16.7	51.3	165.7
2004		9.9	4.7	0.22	0.09	0.10	0.24	0.30	0.43	0.94	2.40	5.7	15.8	48.7	154.2
2005		9.9	4.3	0.19	0.09	0.12	0.22	0.28	0.42	0.92	2.39	5.6	15.3	48.1	152.2
2006		9.6	4.6	0.22	0.09	0.10	0.22	0.25	0.39	0.92	2.33	5.6	14.8	45.7	143.8
2007		9.6	4.3	0.19	0.08	0.12	0.21	0.25	0.39	0.92	2.27	5.6	14.5	44.9	143.6
2008		9.6	4.2	0.21	0.09	0.09	0.20	0.25	0.41	0.93	2.28	5.5	14.2	44.2	145.5
2009		9.1	4.2	0.18	0.09	0.11	0.19	0.23	0.40	0.91	2.15	5.4	13.4	41.4	136.2
2007	March	10.9	4.5	0.24	0.07	0.12	0.27	0.27	0.38	0.97	2.31	5.9	16.3	51.7	166.9
	June	9.2	4.6	0.21	0.10	0.13	0.18	0.22	0.44	0.86	2.31	5.5	14.1	42.8	135.6
	Sept	8.5	4.1	0.14	0.06	0.11	0.18	0.28	0.36	0.87	2.22	5.2	12.9	39.9	124.3
	Dec	9.8	4.2	0.16	0.10	0.12	0.20	0.25	0.38	0.96	2.25	5.7	14.7	45.4	147.9
2008	March	10.4	4.5	0.20	0.07	0.09	0.22	0.23	0.42	0.93	2.34	5.6	15.0	48.7	160.7
	June	9.3	3.6	0.20	0.11	0.10	0.16	0.28	0.41	0.92	2.29	5.5	13.8	42.8	139.7
	Sept	8.5	4.4	0.20	0.09	0.08	0.20	0.24	0.43	0.91	2.17	5.2	13.0	38.9	123.4
	Dec	10.3	4.3	0.25	0.09	0.08	0.23	0.26	0.40	0.97	2.32	5.8	15.0	46.4	158.4
2009	March	10.6	4.3	0.21	0.09	0.10	0.18	0.24	0.42	0.96	2.25	5.9	14.8	48.5	166.0
	June	8.5	4.4	0.17	0.09	0.07	0.19	0.20	0.39	0.85	2.08	5.1	12.9	39.1	124.7
	Sept	8.0	3.8	0.17	0.09	0.09	0.17	0.22	0.37	0.85	2.03	5.0	12.3	36.3	116.7
	Dec	9.3	4.4	0.20	0.09	0.16	0.23	0.27	0.41	0.97	2.24	5.5	13.7	41.9	138.2
2010	March[P]	10.4	4.2	0.18	0.11	0.13	0.21	0.21	0.39	0.94	2.21	5.8	13.9	45.8	159.6
	June[P]	8.7	4.2	0.19	0.10	0.07	0.21	0.22	0.35	0.90	2.01	5.1	13.0	38.8	127.5
	Sept[P]	8.3	3.9	0.15	0.06	0.09	0.19	0.17	0.38	0.87	2.04	5.0	12.3	36.5	120.1

See notes on first page of tables.

Table 6.2 **Deaths: selected causes (International Classification)[1] and sex**

England and Wales

Numbers (thousands) and rate for all deaths and age-standardised rates per million population for selected causes

Year and quarter	All deaths		Malignant neoplasms										
	Number (thousands)	Crude rate per 100,000 popualtion	All causes (age - standardised per million population[2])	Oesophagus	Stomach	Colon	Rectosigmoid junction, rectum, and anus	Trachea, bronchus and lung	Melanoma of skin	Other malignant neoplasms of skin	Breast	Cervix uteri	Ovary
			A00-R99 V01-Y89	(C15)	(C16)	(C18)	(C19-C21)	(C33-C34)	(C43)	(C44)	(C50)	(C53)	(C56)
Males													
1971	288 4	1,207	13,466	76	317	187	144	1,066	10	12	4	.	:
1981	289.0	1,196	12,189	90	251	181	135	1,028	17	9	3	.	:
1991	277.6	1,125	10,291	117	185	194	117	842	23	10	3	:	.
2001	252.4	987	8,188	129	111	155	89	570	26	7	3	.	.
2002	254.4	990	8,126	131	110	151	91	561	27	8	3	.	:
2003	254.4	985	8,025	134	102	146	90	538	28	8	2	:	:
2004	245.2	943	7,595	129	95	142	92	522	30	9	2	:	:
2005	243.9	931	7,380	132	93	138	92	513	28	8	2	:	.
2006	240 9	913	7,123	131	83	132	90	509	31	7	2	:	.
2007	240.8	906	6,948	128	82	128	88	498	31	8	3	:	:
2008	243.0	907	6,852	131	78	129	90	495	31	7	2	.	:
2009	238.1	882	6,573	130	76	125	86	480	32	7	2	.	:
2007 March	65.4	998	7,615	126	88	132	86	522	33	7	2	:	.
June	58.2	879	6,755	130	84	122	86	493	31	8	3	:	:
Sept	55.2	824	6,339	128	80	126	87	470	29	7	3	:	:
Dec	62.0	926	7,095	129	78	132	94	509	31	9	3	:	:
2008 March	64.6	969	7,295	136	80	132	88	509	29	5	1	:	.
June	59 1	887	6,715	126	77	130	90	478	33	8	2	:	.
Sept	55 4	823	6,257	126	79	129	92	484	30	8	2	:	:
Dec	63 9	950	7,145	135	78	126	91	510	33	6	1	:	:
2009 March	65.9	990	7,310	129	71	131	84	480	28	7	2	:	:
June	56.6	841	6,281	134	77	123	87	487	33	7	2	:	:
Sept	54.5	801	6,003	130	78	120	81	468	33	8	3	:	:
Dec	61.1	898	6,710	126	78	125	92	486	33	8	2	:	:
2010 March[P]	63.8	950	6,943	127	72	118	89	475	34	6	2	:	:
June[P]	57.1	842	6,197	126	75	120	92	454	33	8	2	.	:
Sept[P]	54.8	798	5,894	130	76	117	94	467	31	6	1	:	:
Females													
1971	278.9	1,104	8,189	40	149	176	79	183	14	6	379	83	126
1981	288.9	1,134	7,425	42	111	157	74	252	16	5	405	69	121
1991	292.5	1,122	6,410	50	74	146	61	300	18	4	401	54	118
2001	277.9	1,038	5,543	48	46	103	45	283	20	3	308	31	112
2002	281.0	1,046	5,539	51	44	103	44	285	19	3	302	29	112
2003	284.7	1,056	5,584	50	42	98	46	285	20	3	293	27	108
2004	269.0	994	5,277	48	42	96	47	284	19	3	285	27	102
2005	269.1	988	5,188	48	39	96	45	289	20	3	282	26	102
2006	261.7	956	4,988	48	35	93	46	300	19	4	277	24	99
2007	263.3	957	4,920	47	35	92	48	300	21	4	267	24	96
2008	266.1	961	4,897	47	35	90	48	307	22	3	263	23	93
2009	253.3	910	4,628	45	32	85	47	298	21	3	254	23	91
2007 March	74.0	1,091	5,522	50	35	92	49	314	22	4	284	25	95
June	62.8	916	4,756	48	31	88	45	296	22	4	267	22	97
Sept	58.8	847	4,407	40	37	91	47	285	21	3	251	22	96
Dec	67.7	976	5,006	51	37	96	49	305	20	4	268	25	94
2008 March	71.8	1,044	5,246	50	36	86	47	302	20	3	269	24	93
June	64.0	930	4,758	46	36	86	47	298	21	3	259	23	91
Sept	58.9	846	4,398	43	34	94	45	299	23	3	254	24	92
Dec	71.4	1,026	5,188	48	33	93	50	329	24	2	268	23	96
2009 March	73.0	1,064	5,287	45	32	88	49	301	19	3	267	23	91
June	59.1	852	4,373	45	32	82	46	294	19	2	252	23	90
Sept	56.2	801	4,138	45	31	82	45	288	20	3	241	23	90
Dec	65.0	926	4,728	45	33	86	46	310	25	4	255	22	95
2010 March[P]	70.7	1,022	5,077	43	35	87	47	320	20	4	252	23	95
June[P]	60.1	861	4,382	42	34	85	44	290	19	3	235	23	88
Sept[P]	57.6	815	4,171	44	30	81	44	292	21	3	248	23	86

Notes: Figures represent the number of deaths registered in each year up to 1992 and the number of deaths occurring in each year from 1993 to 2001. The number of deaths for 2002 onwards relate to registrations.

The rates by cause of death in this table are based on final underlying cause. For further details see the Statistical Bulletin: Registrations by cause in England and Wales, 2009 available at www.statistics.gov.uk/pdfdir/dth1010.pdf

Death rates for 2002 to 2008 have been updated using revised mid-2002 to mid- 2008 population estimates which were published on 13 May 2010.

Death rates for 2009 have been updated using the latest 2009 mid year population estimates published on 24 June 2010.

Death rates for 2010 are provisional and based on the 2008-based population projections for 2010.

Table 6.2 continued **Deaths: selected causes (international Classification)[1] and sex**

England and Wales — Numbers (thousands) and rate for all deaths and age-standardised rates per million population for selected causes

Malignant neoplasms													
Prostate	Bladder	Leukaemia	Diabetes mellitus	Ischaemic heart disease	Cerebro vascular diseases	Pneumonia	Bronchitis, emphysema and other chronic obstructive pulmonary disease	Asthma	Gastric and duodenal ulcer	Diseases of the liver	Land transport accidents	Intentional self-harm and events of undetermined intent with inquest verdict 'Open'	Year and quarter
(C61)	(C67)	(C91-C95)	(E10-E14)	(I20-I25)	(I60-I69)	(J12-J18)	(J40-J44)	(J45-J46)	(K25-K27)	(K70-K76)	(V01-V89)	(X60-X84, Y10-Y34)	
													Males
198	124	74	82	3,801	1,541	920	944	21	107	41	209	124	1971
214	121	74	82	3,664	1,141	1,053	683	28	90	58	119	151	1981
304	121	77	131	2,984	940	391	606	31	73	76	125	160	1991
274	93	70	94	1,872	690	388	403	16	55	139	86	134	2001
272	90	68	91	1,792	692	389	398	16	56	145	93	134	2002
273	88	72	91	1,703	663	407	410	14	53	156	91	134	2003
267	85	67	83	1,570	596	361	366	15	50	152	85	133	2004
256	80	67	78	1,467	553	353	368	12	46	155	85	128	2005
250	81	68	74	1,353	520	320	343	10	45	161	83	123	2006
247	81	66	71	1,280	481	303	337	11	39	162	79	119	2007
240	79	65	73	1,211	467	301	346	10	40	164	70	125	2008
239	79	64	66	1130	432	283	320	10	37	157	61	127	2009
252	83	66	77	1,441	541	395	433	11	44	178	84	115	March 2007
246	80	69	65	1,249	465	286	311	11	36	154	77	121	June
233	78	61	65	1,146	429	226	265	9	35	152	73	116	Sept
257	82	69	75	1,287	489	306	338	11	40	167	82	125	Dec
239	75	64	75	1,325	514	362	413	11	48	164	68	108	March 2008
228	78	65	73	1,196	453	284	321	8	39	161	72	121	June
238	76	61	69	1,071	409	225	260	8	34	162	70	137	Sept
253	86	68	75	1,253	495	335	392	12	39	169	70	135	Dec
246	81	69	72	1,317	516	408	428	11	41	155	64	119	March 2009
237	78	59	63	1,071	400	248	286	9	37	149	58	125	June
234	76	64	59	1,005	382	203	250	8	35	155	57	125	Sept
240	82	64	70	1,131	430	278	316	11	35	169	63	138	Dec
244	74	63	69	1,205	482	334	377	11	38	170	48	112	March[P] 2010
231	73	60	61	1,074	411	235	294	6	33	151	50	118	June[P]
232	78	64	55	956	370	196	254	7	28	149	49	124	Sept[P]
													Females
:	32	47	89	1,668	1,352	624	193	25	44	31	82	84	1971
:	35	47	66	1,601	1,012	740	155	30	57	43	41	81	1981
:	34	44	95	1,407	812	325	211	30	46	49	45	51	1991
:	29	41	62	878	620	307	220	19	39	77	23	40	2001
:	30	43	65	845	618	318	225	20	37	79	25	42	2002
:	30	39	66	813	606	336	243	19	36	80	28	42	2003
:	28	40	60	737	551	297	214	18	35	83	25	44	2004
:	28	39	56	686	518	297	224	17	32	81	23	43	2005
:	29	36	54	629	478	261	213	16	29	87	24	39	2006
:	27	38	53	592	454	251	218	14	26	87	23	35	2007
:	27	37	51	561	442	255	226	15	27	86	21	38	2008
:	27	37	49	504	407	228	206	13	24	83	17	38	2009
:	29	40	58	689	517	353	298	18	28	96	23	33	March 2007
:	29	36	49	569	439	228	204	14	27	85	27	31	June
:	24	34	50	520	399	178	156	12	24	80	22	35	Sept
:	26	41	56	591	464	249	217	14	26	86	20	39	Dec
:	29	36	54	612	485	319	263	17	28	91	21	33	March 2008
:	27	36	51	547	431	236	206	14	26	85	22	39	June
:	25	36	46	498	380	170	159	11	27	78	24	40	Sept
:	27	37	53	590	472	295	275	17	27	92	18	40	Dec
:	27	34	58	576	483	347	288	18	28	86	17	36	March 2009
:	28	35	45	490	377	188	180	12	21	82	16	37	June
:	27	39	46	448	349	160	147	9	22	76	15	39	Sept
:	26	39	47	503	421	220	209	13	25	88	19	38	Dec
:	24	37	54	542	457	279	257	18	26	95	14	35	March[P] 2010
:	24	36	46	464	371	191	195	13	23	80	15	40	June[P]
:	26	37	44	426	352	149	157	10	19	79	18	38	Sept[P]

1 The Ninth Revision of the International Classification of Diseases, 1975, came into operation in England and Wales on 1 January 1979.TheTenth Revision of the International Classification of Diseases, 1992, came into operation in England and Wales on 1 January 2001. The cause descriptions and codes relate to ICD-10. For changes to this table see 'In Brief', Health Statistics Quarterly 14.

2 Directly age-standardised to the European Standard Population. See Notes to Tables.

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